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1966

IN THIS ISSUE

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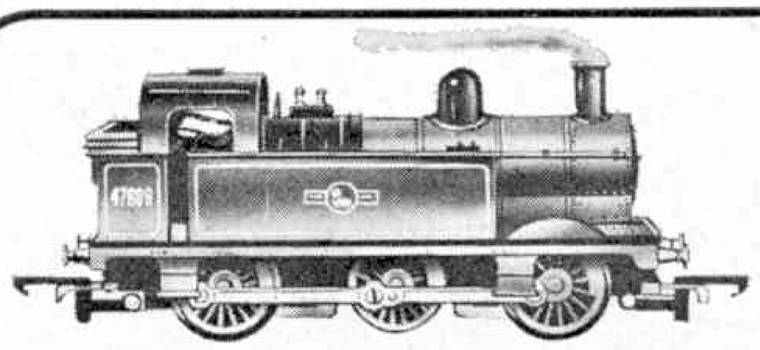

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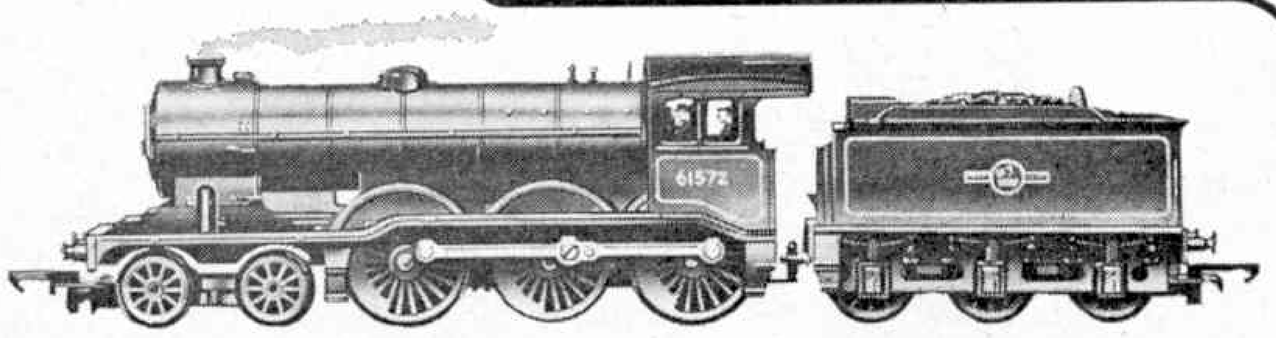

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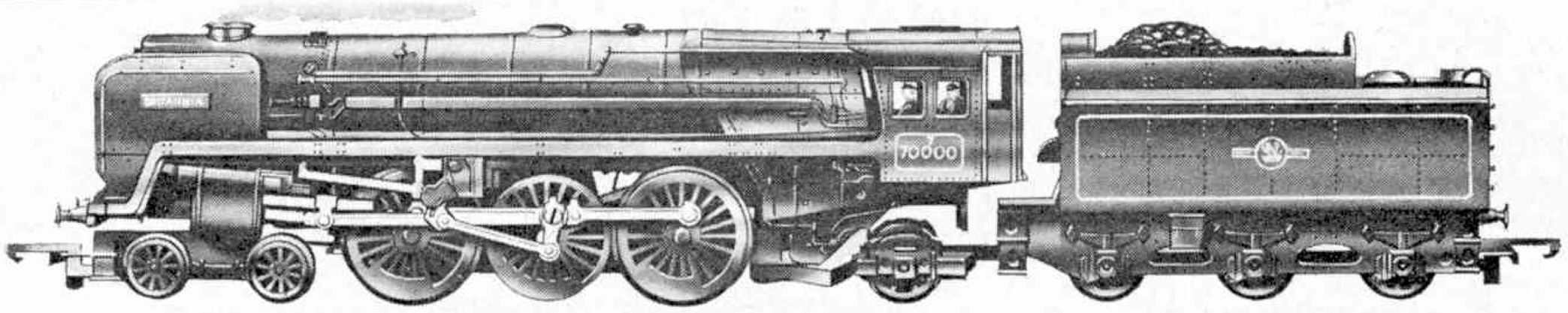

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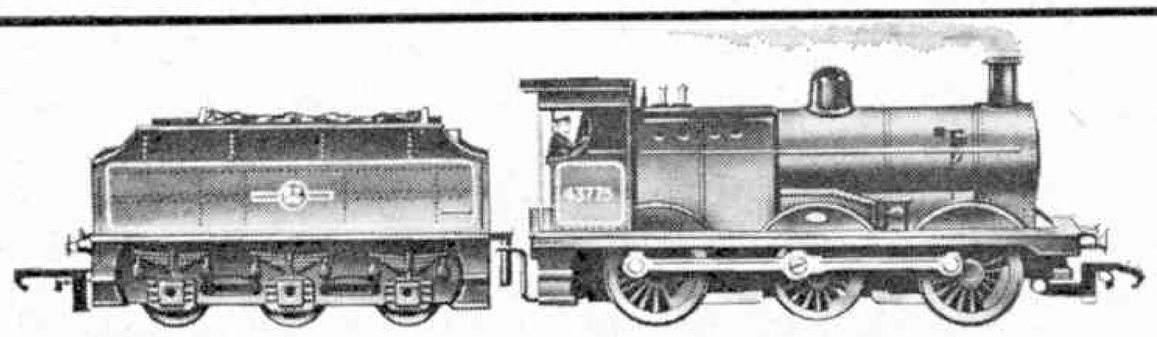

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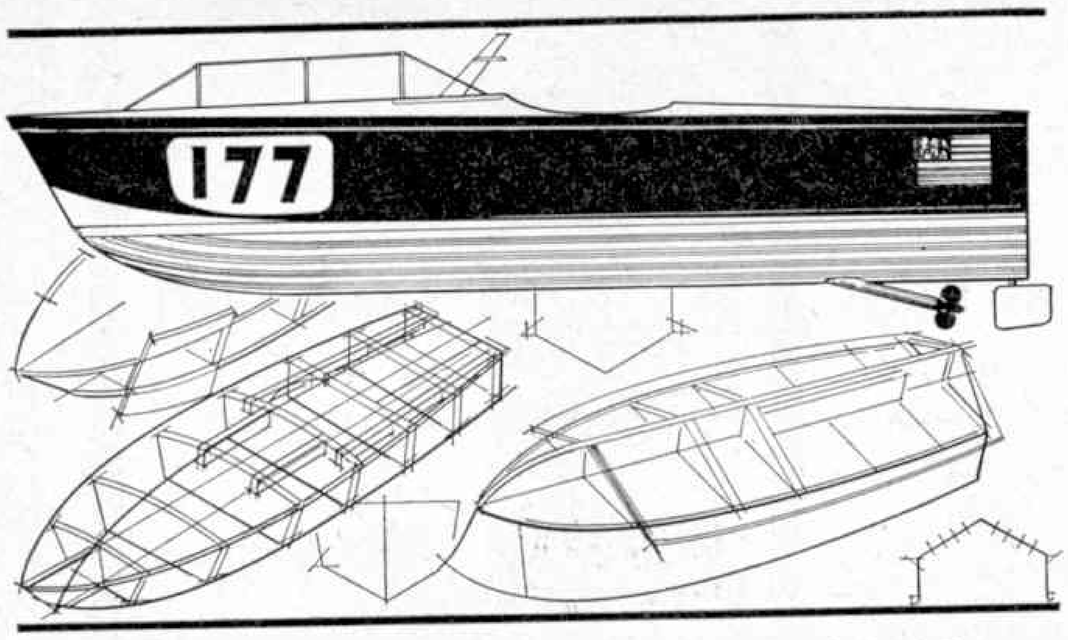
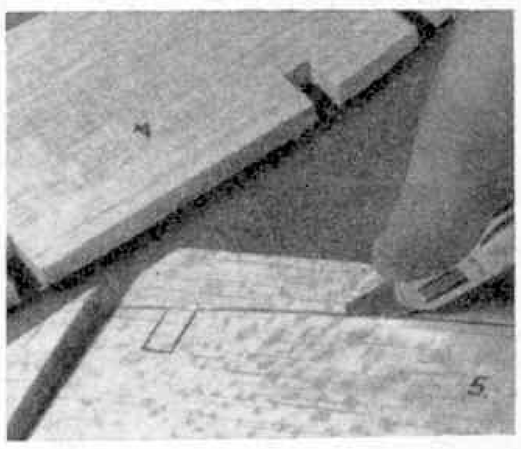


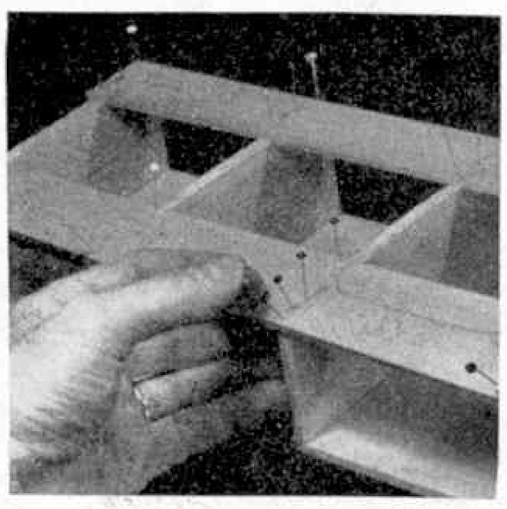
"PROJECT 66"

See Page 8

WHY BALSA ?

Balsa was chosen for the construction of this model because besides combining lightness with strength, Balsa is by far the easiest material to cut, shape, joint, etc., for model building. You can use thicker material (for strength) without adding excess weight (which detracts from performance on a power boat) and still find it easy to cut parts out.

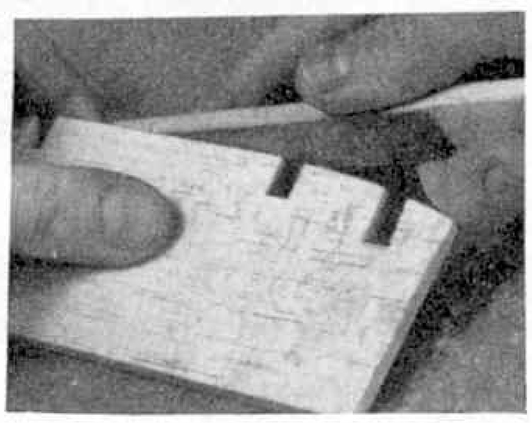




WHY SOLARBO?

You need the *best* Balsa for a job like this, which is why SOLARBO BALSA is an automatic choice. Solarbo Balsa is specially selected and graded for modelling use and known the world over for its consistent high quality. Don't take chances with "Project 66". Make sure *you* use Solarbo—the best Balsa you can obtain anywhere.

Another advantage is that you can use balsa cement for all glued joints, cutting down on building time. Also you can use pins for clamping parts together until set. With ply the job would take very much longer, and you could not use quick-drying cement without the risk of joints opening up when the hull is in the water. By designing the model *around* Balsa, you get a better job.



"PROJECT 66" SHOPPING LIST

This model is built from standard sizes of Solarbo Balsa sheet, strip and block. You may already have some in stock, so check what you need against the following list and take it along to your local model shop. You will have some material left over to go towards the construction of other models, too, so save any piece left over.

SOLARBO BALSA SIZES

- ☐ 4 off 36″ × 3″ × $\frac{1}{4}$″
- ☐ 1 off 36″ × 3″ × $\frac{3}{16}$″
- ☐ 2 off 36″ × 2″ × $\frac{3}{16}$″
- ☐ 3 off 36″ × 3″ × $\frac{1}{8}$″
- ☐ 2 off 36″ × 2″ × $\frac{1}{8}$″
- ☐ 6″ length 2″ × 1$\frac{1}{2}$″ block
- ☐ 6″ length 2″ × 2″ block
- ☐ 1 off 36″ × $\frac{1}{2}$″ × $\frac{1}{4}$″
- ☐ 3 off 36″ × $\frac{1}{4}$″ × $\frac{1}{16}$″*
- ☐ 3 off 36″ × $\frac{1}{4}$″ × $\frac{3}{32}$″*
- ☐ 6 off 36″ × $\frac{1}{8}$″ sq*

* for Phase 2

OTHER MATERIALS

- ☐ 6$\frac{1}{2}$″ × 4$\frac{1}{2}$″ $\frac{1}{16}$″ ply
- ☐ 2 tubes balsa cement, tissue, pins

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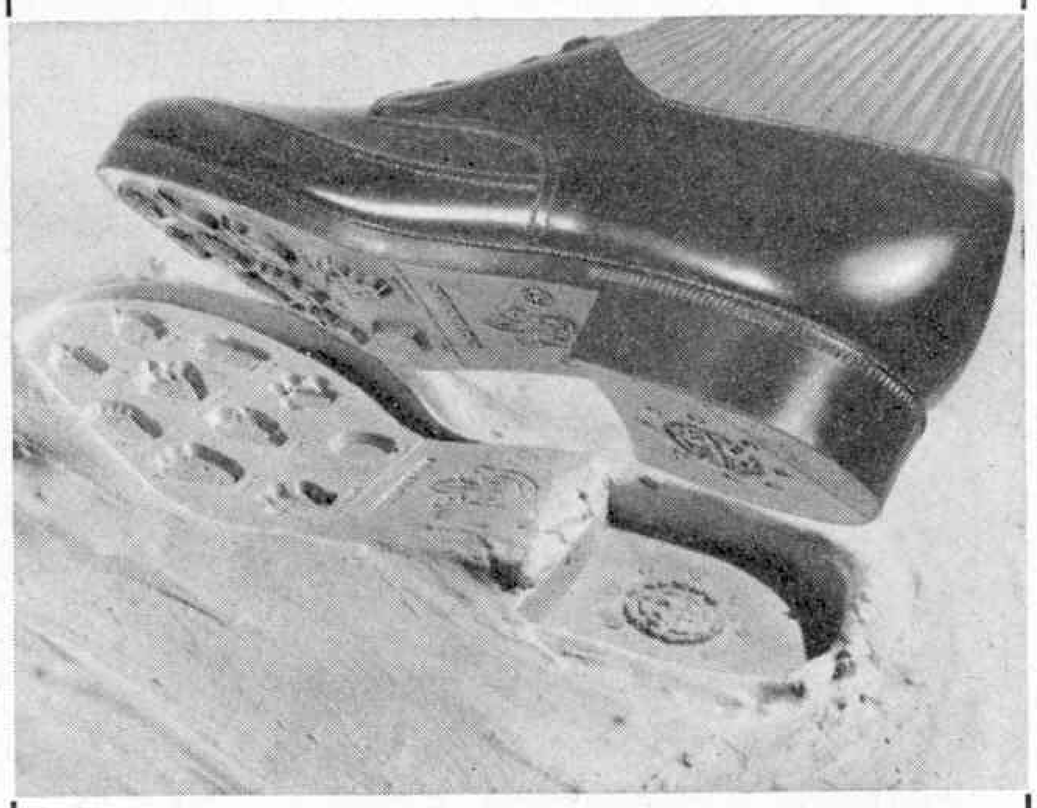

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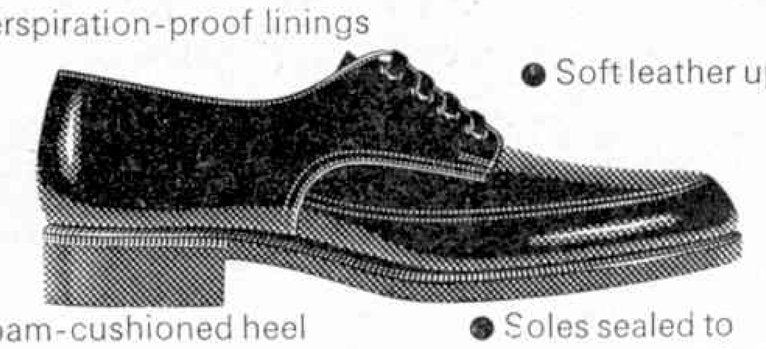

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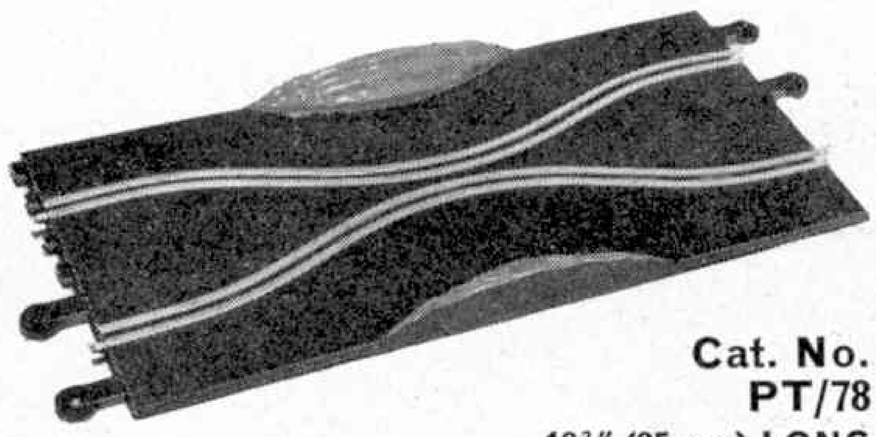

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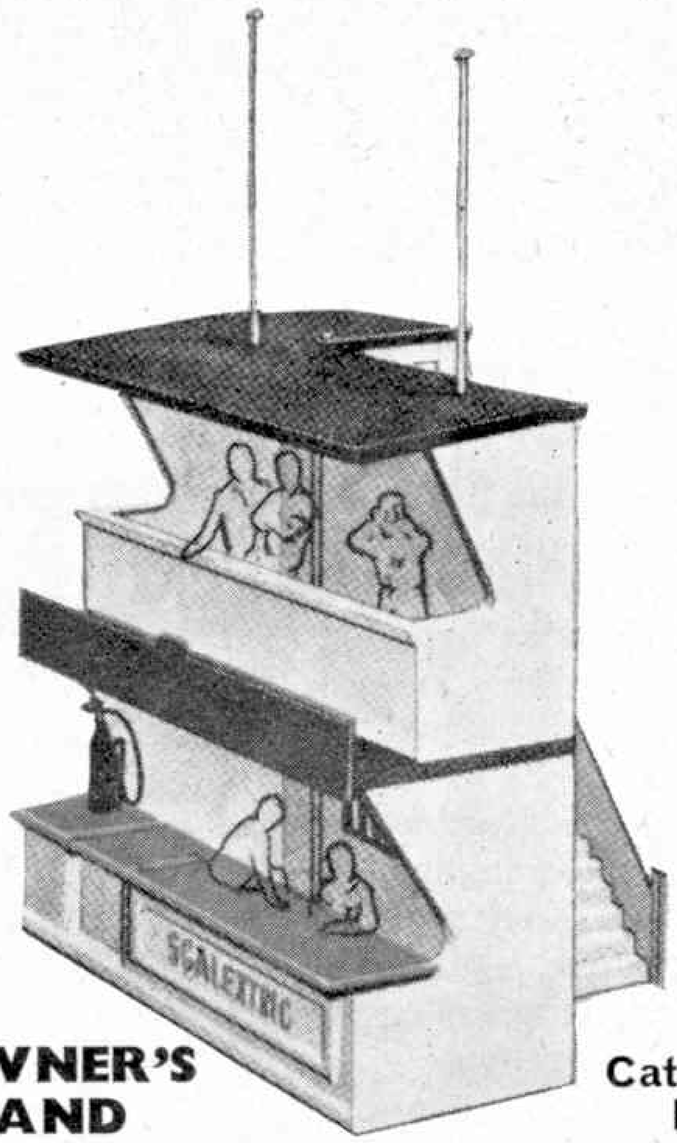

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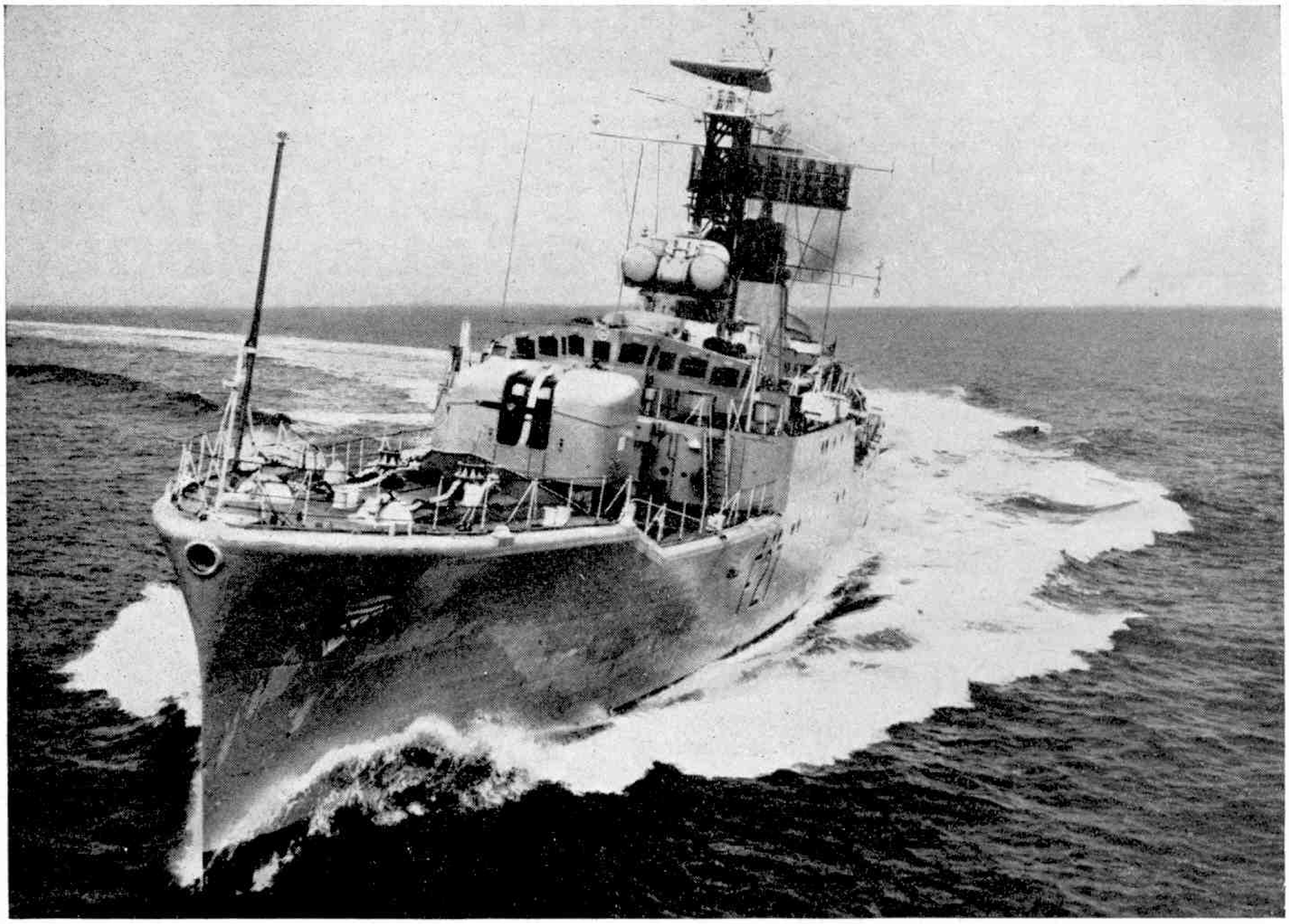

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meccano magazine

the practical boy's

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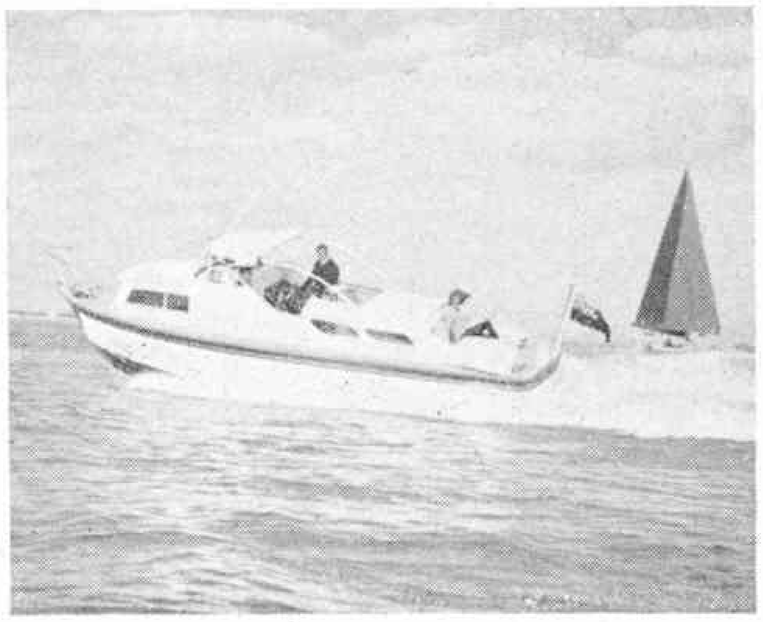
AEROMODELLING □ RADIO □ ELECTRONICS □ CAMPING □ CYCLING □ STAMPS □ FISHING



Front Cover

With flying spray and roaring motors, the Dell Quay 'Ranger' almost flies over the water. She can do 35 to 40 m.p.h. and makes a striking picture. (Photograph by courtesy of Dell Quay Sales Ltd., Itchenor)

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Ordering the Meccano Magazine Overseas Readers overseas can order the Meccano Magazine from Meccano dealers or direct from the publishers, or from the publishers' offices listed above. The subscription rate for 12 months is the equivalent of 20s. sterling at the current rate of exchange, U.S.A. and Canada $3.00.

1916—1966

Elsewhere in this issue, we pause to take a backward glance at some of the landmarks in our first half century. It has been a half century of fantastic progress. Progress in all fields has been so accelerated, that in the rush and bustle many long established and worthwhile institutions have foundered or been altered out of all recognition. One must accept change, though the timid would often prefer to try and stop the clock rather than risk a possible rebuff resulting from experiment and enterprise.

No one could accuse a Meccano enthusiast of such staleness! Even the most elementary outfit stimulates inventive talent, and much real **engineering progress owes its development directly to a Meccano model.**

At the last Motor Show, we read of the successful production of the revolutionary automatic transmission, which the British Motor Corporation believes will be a world-beater: an export asset of incalculable value to this country. This remarkable achievement was first inspired by Mr. Hugh Reid's Meccano model, which demonstrated its feasibility.

It is a remarkable tribute to the initial foresight and soundness of its conception, that it has never been necessary basically to alter the original Meccano system. There is no reason why the same parts should not, in another 50 years time, still be producing such "models of tomorrow".

The very versatility of the Meccano system ensures its continuance in a changing world. Meccano Magazine too, has changed—that's why it has survived—but its basic aim remains the same; to encourage and stimulate the imagination and constructional skills of its readers.

Your letters and comments invariably indicate your approval (or otherwise) of our editorial innovations, and these, with brickbats or **bouquets are as essential to the continued success of the M.M. as the features themselves. So here's to the** next **50 years!**

The Editor

Next month The story of Britain's first jet aeroplane and how to build a model of this historic machine.

PROJECT '66

Daily Express photograph

PHASE 1—THE HULL

This month's big **free plan** marks the start of PROJECT 66. Follow it through, and you can have a super radio controlled winner ready for the 1966 season. **Brave Moppie**—winner of the 1965 International Daily Express Offshore Powerboat Race—was the inspiration for RON WARRING'S exciting model.

THE full size plan included in this issue is a near-scale model of 1965's outstanding powerboat—'Brave Moppie', winner of the International Offshore Powerboat Boat race. The full size craft is based on the now famous 'deep vee' hull form originated by Ray Hunt (who previously used to design high speed naval craft, incidentally). We have chosen a near-scale rather than an exact scale model for two reasons. First, the hull shape we are using is very straightforward and easy to build. Second, the same basic hull can also be used for making a variety of other near-scale models of still more famous power boats —'Surfury', the 1964 winner; 'Thunderbird' second in 1965; the well known Fairey 'Huntress', and so on.

In this first article we are giving complete details of building the hull for 'Brave Moppie'. **Phase 2** next month will give full details of finishing and fitting out for powering by electric motor *or* diesel motor, to your choice. **Phase 3** in the series will appear in March with further plans and details for building other famous models using the same hull. You can either modify your 'Moppie' or build new hulls for each of these extra models and end up with a whole fleet of powerboat racers! Finally, in **Phase 4** we shall be giving complete details of how to fit out and operate your model with radio control.

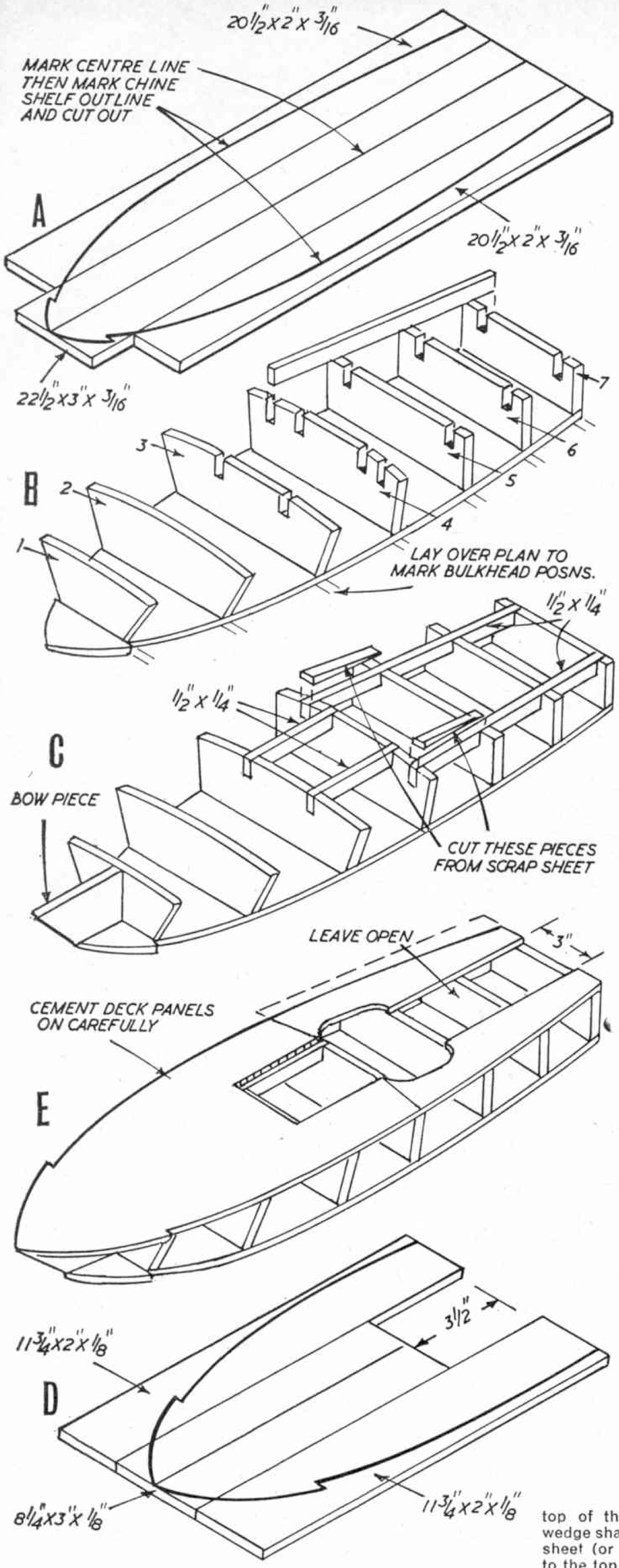
To simplify construction and make for quicker and easier assembly balsa is used throughout for all parts of the hull (with the sole exception of the transom, which is cut from $\frac{1}{16}$ in. ply). The majority of parts are cut from balsa sheet and, where necessary, you will find full size patterns of the parts required on one or other side of the plan. These patterns must be transferred onto the balsa sheet for cutting out, either by tracing or using carbon paper, or laying the plan over the sheet and pricking around the outline. In the latter case the prick marks can be joined with a pencil line as a final guide for cutting out. In the case of the *chine shelf* and *foredeck* only half the pattern required is given on the plan, so a tracing should be made of this half pattern on a sheet of tracing paper. Turn the tracing paper over and align with the centre line marked on the balsa panel, then mark one half outline. Turn the tracing paper over again and realign, and mark the second half of the pattern layout. This will ensure that your chine shelf and foredeck shapes, when traced onto the balsa, are exactly symmetrical.

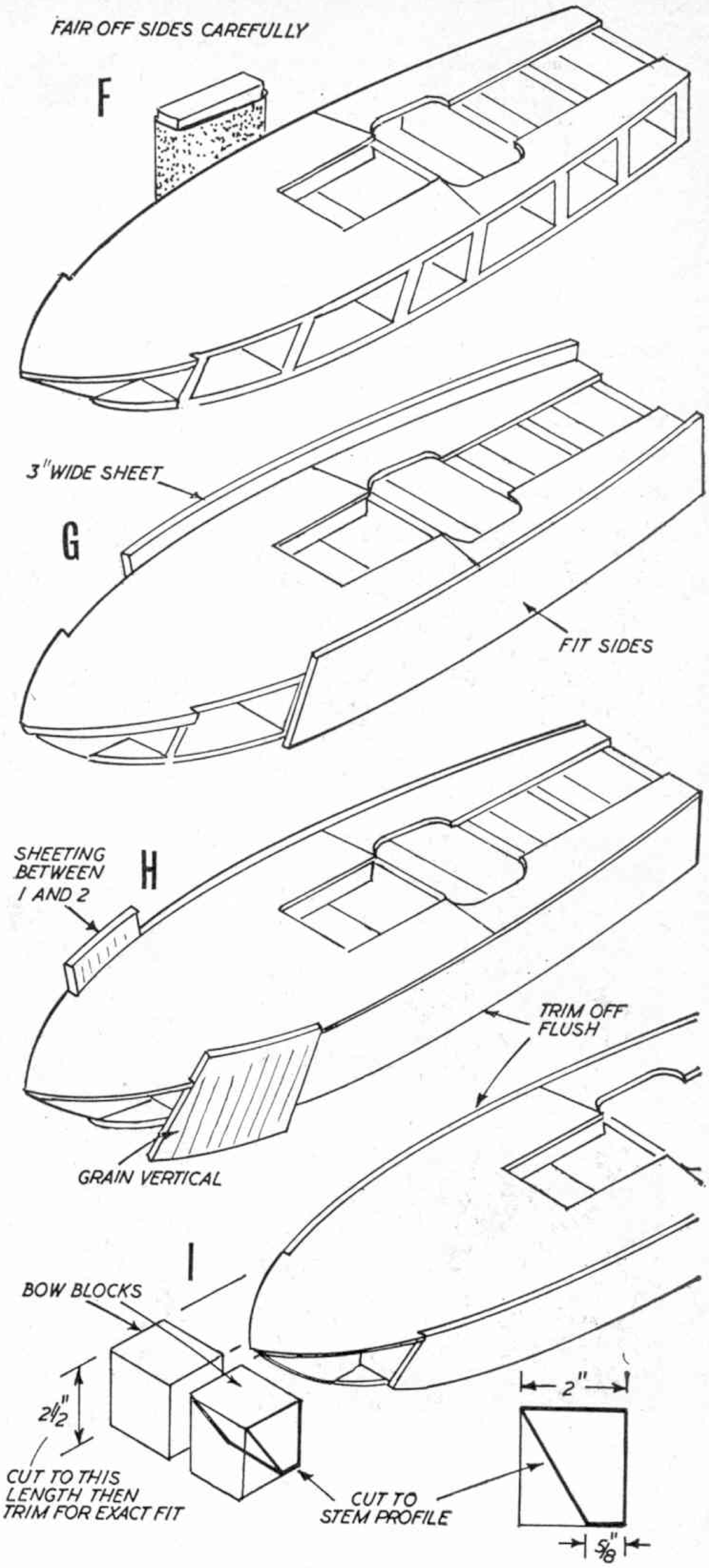
Since building follows a sequence of logical steps we are grouping these under separate headings, illustrated by a diagram where necessary as a further aid.

Step 1 Cut two 20½ in. lengths of 2 in. by $\frac{3}{16}$ in. sheet balsa and one 22½ in. length of 3 in. by $\frac{3}{16}$ in. sheet balsa and cement together carefully on a flat surface as shown in Fig. A. Leave until the cement has set. Mark a centre line in pencil on the middle sheet and then trace or mark out the *chine shelf outline*, taken from the full size plan. Now cut out carefully to this outline shape with a sharp modelling knife or a fretsaw.

Step 2 Mark out and cut all the bulkheads—1, 2, 3, 4, 5, 6 and 7—using the full size patterns on the plan. These are cut from $\frac{1}{4}$ in. sheet balsa. (You can do this whilst the three sheets cemented together in stage 1 are setting.) Also cut two 12½ in. lengths and two 3⅞ in. lengths of ½ in. by ¼ in. balsa strip.

Step 3 Lay the cut out chine shelf (step 1) over the plan and mark on the position of the bulkheads. Cement these bulkheads to the chine shelf, as shown in Fig. B and photo 1.





Step 4 Cement the ½ in. by ¼ in. balsa deck beams and hatch beams into the slots in the bulkheads. The deck beams will come below the top of bulkhead 4—i.e. leave a gap at the top of the slot. Carve two small wedge shaped pieces from scrap ¼ in. sheet (or ¼ in. sq. strip) to fair in to the top of bulkhead 4, as shown in Fig. C. Also cut the *bow piece* from ¼ in. sheet and cement in position.

Step 5 Cement two 11¾ in. by 2 in. by ⅛ in. panels of balsa sheet and one 8¼ in. by 3 in. by ⅛ in. sheet together as shown in Fig. D. For a better camber, the centre sheet can be cut from 3/16 in. sheet. Mark a centre line on the middle sheet and mark out the foredeck shape, using a tracing off the full size plan. Cut out with a sharp modelling knife.

Step 6 Cement the foredeck carefully in position, as shown in Fig. E. overlapping *one half* the thickness of bulkhead 4. Then add the two after

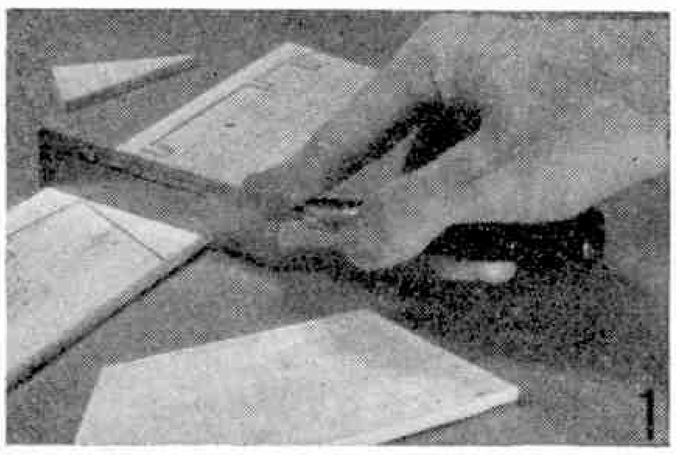
Continued overleaf

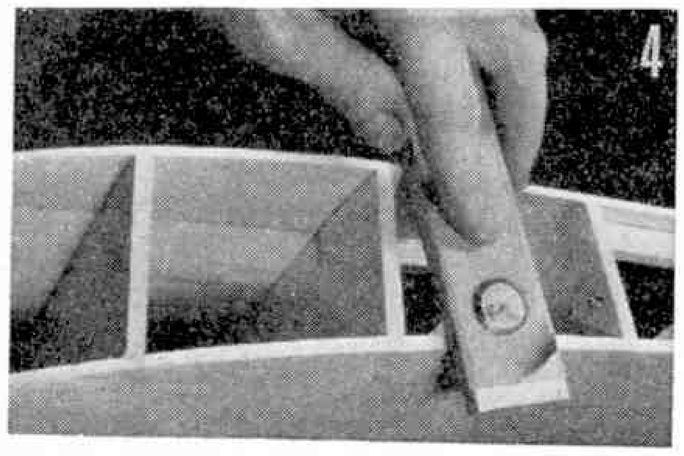
decking pieces, which are 12½ in. by 2 in. by ⅛ in. balsa sheet panels onto which the aft deck shape is marked. Cement in position leaving a gap between them of 3 in. When set, trim down to the correct outside shape and cut away for the cockpit, to the lines previously marked on these panels. (Photo 3)

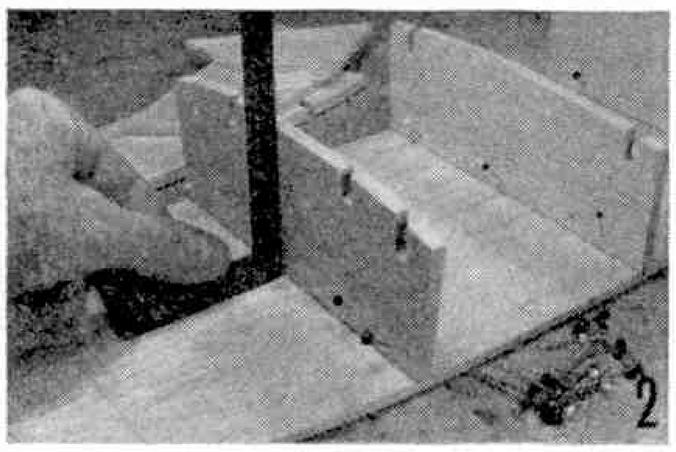
Step 7 Now fair in the sides carefully with a sandpaper block so that the edges of the deck and bulkheads blend together. At the same time the edges of bulkheads 1, 2, 3 and 4 must be chamfered to blend with the curvature of the deck—Fig. F, and photo 4

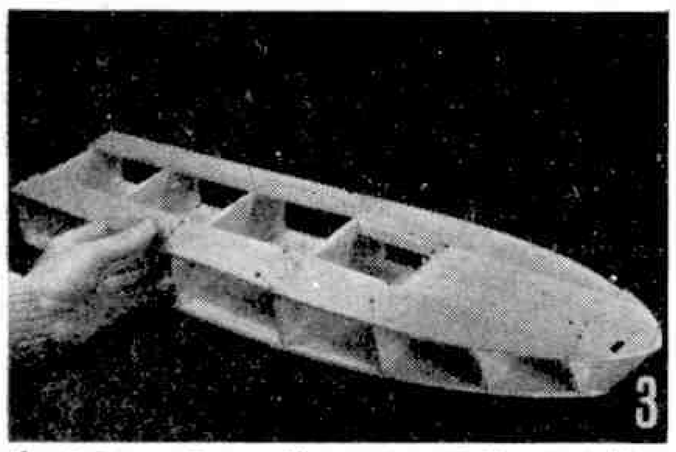
Step 8 Cut two 20 in. lengths of 3 in. by ⅛ in. balsa sheet. These are cemented in place as shown in Fig G, finishing at the front so that they overlap *half* the thickness of bulkhead 2. When set, trim down close to the deck and bottom of the chine shelf. (Photo 5)

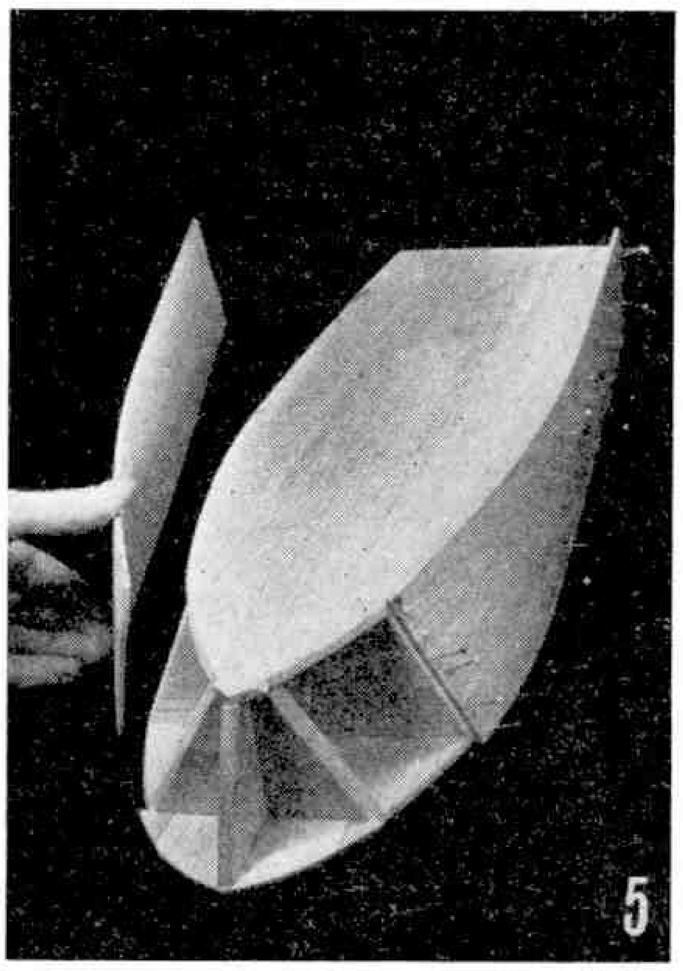
On this PICTURE PAGE you can see how the Editor's hull is progressing. Visitors to the Schoolboys and Girls Exhibition will be able to study his finished model on the Meccano Magazine stand.

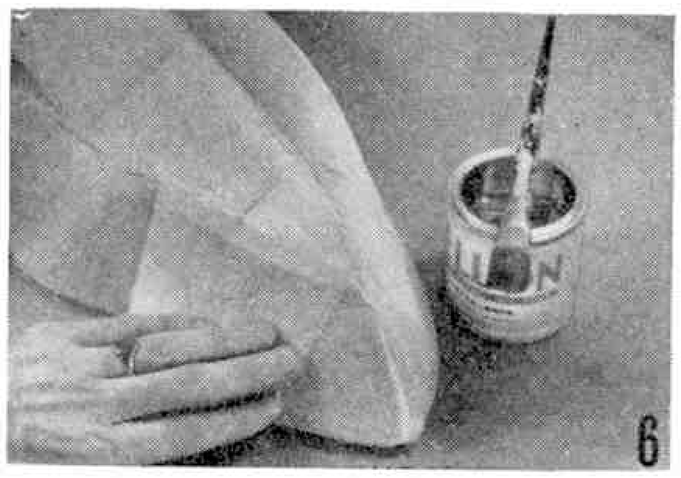












1 *A Razor-Saw will cut beautifully straight lines in ¼ in. sheet*

2 *Use a 'Square' to ensure upright bulkheads*

3 *Glass-Headed Pins are useful for holding cemented parts*

4 *The secret of good balsa construction is always to use sandpaper wrapped round or stuck to, a piece of wood. Make up several such 'Sanding Sticks' with both flat and curved wooden shapes*

5 *The curved side sheets may be steamed to approximate shape before cementing in place. Balsa becomes quite flexible when held in the steam from a boiling kettle—mind your hands!*

6 *Using Clear Dope as an adhesive for attaching the Heavyweight Modelspan tissue to the hull. Dope the hull first, sand lightly when dry, then dope OVER and THROUGH the tissue, rubbing it firmly into contact before it dries*

Step 9 The remaining part of each side between bulkhead 1 and bulkhead 2 is then covered with a 3 in. wide piece of ⅛ in. sheet with the grain running vertically—Fig. H. You will have to offer this piece up in position and cut and trim for an exact fit. When satisfied, cement securely in place. Trim off surplus sheet when set.

Step 10 Cut two bow blocks, each 2½ in. long from 2 in. square balsa block. Now trim their height so that they fit exactly into the space between the deck and chine shelf alongside the bow piece and forward of bulkhead 1—see Fig. I. Then taper to the stem profile shape, as shown, and cement in place.

Step 11 The whole assembly should now be left for several hours for the cement to set (preferably overnight). Then you can carve and sand the bow blocks down to final shape—Fig. J—and also sand off any surplus side sheeting flush with the upper line of the deck panel and the bottom line of the chine shelf.

Step 12 Mark and cut out the keel piece from ¼ in. sheet balsa and then separate into two pieces by sawing along the angled line marked 'cut'. Cut the two doublers from 3/16 in. sheet and mark on the lines indicated in pencil. Now assemble by cementing together as shown in Fig. K with a space of ¼ in. between the two parts of the keel piece, *taking special care to position the doublers so that the rear edge of each doubler corresponds to the front line of bulkhead 6A position* (i.e. 4 1/16 in. in from the extreme end of the keel).

Step 13 Lay the keel piece over the plan and mark the positions of formers 2A, 3A and 5A on each side of the keel assembly. Then cement the keel piece to the bottom of the chine shelf as shown in Fig. L.

Step 14 Cut all the triangular formers (two each off 2A, 3A, 4A, 5A, 6A and 7A) from ¼ in. sheet balsa, using the full size drawings given on the plan. Cement in position as shown in Fig. M.

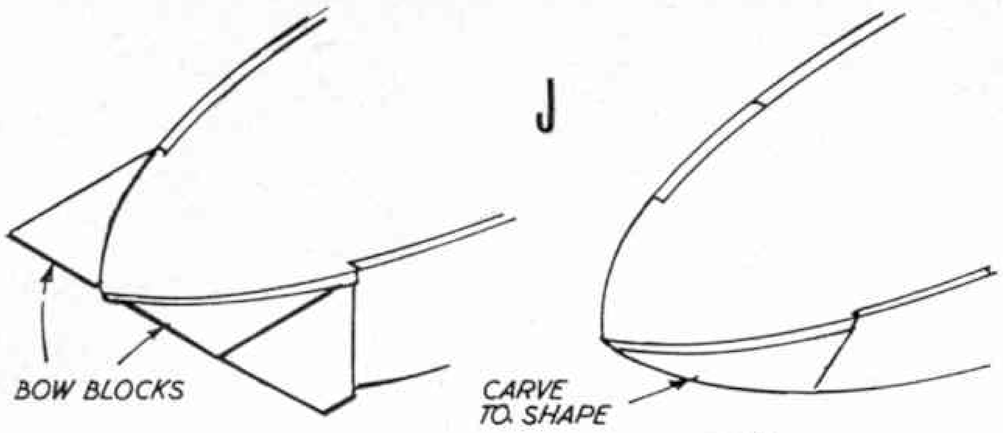
Step 15 When set, fair off the bottom edges of the sides from former 2A aft so that the sloping edges and bottom edge of the sides line up, as shown in Fig. N. Use a sanding block or a sanding stick for this job. Now fit the 3/16 in. doubler behind former 2A.

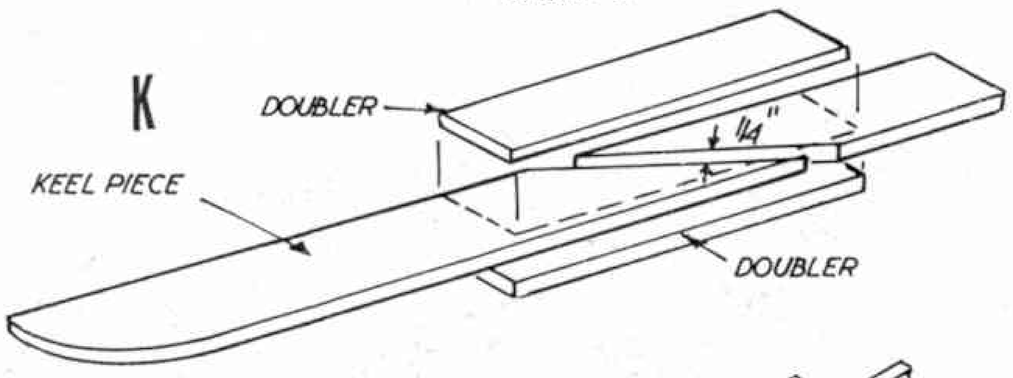
Step 16 For covering the bottom you need two panels of ⅛ in. balsa 19½ in. long by 3½ in. wide. You can buy 4 in. wide sheet for this, or work as follows. Cut two 19½ in. lengths of 2 in. by ⅛ in. sheet and one 19½ in. length of 3 in. by ⅛ in. sheet and cement together edge to edge. When dry, cut down the centre to give two 3½ in. wide panels. Chamfer *one* edge of each panel and cement the bottom panels in place as shown in Fig. O. Don't remove too much balsa in the chamfering operation—as a 3½ in. sheet is just wide enough!

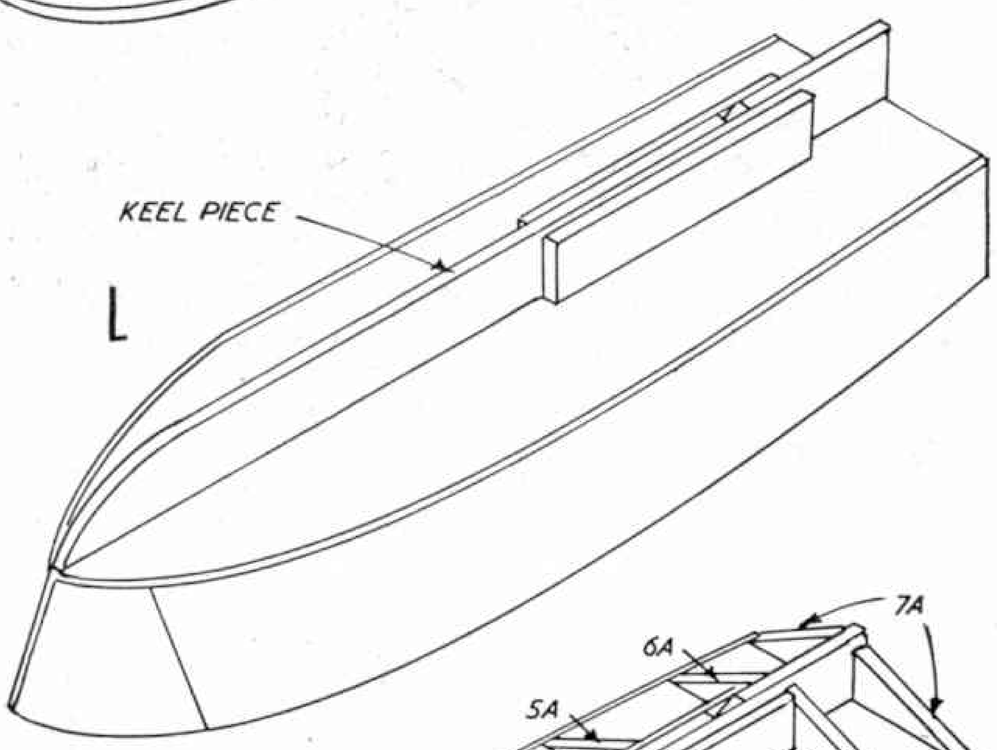
Step 17 Trim off the bottom sheeting square and flush with the sides, Fig. P.

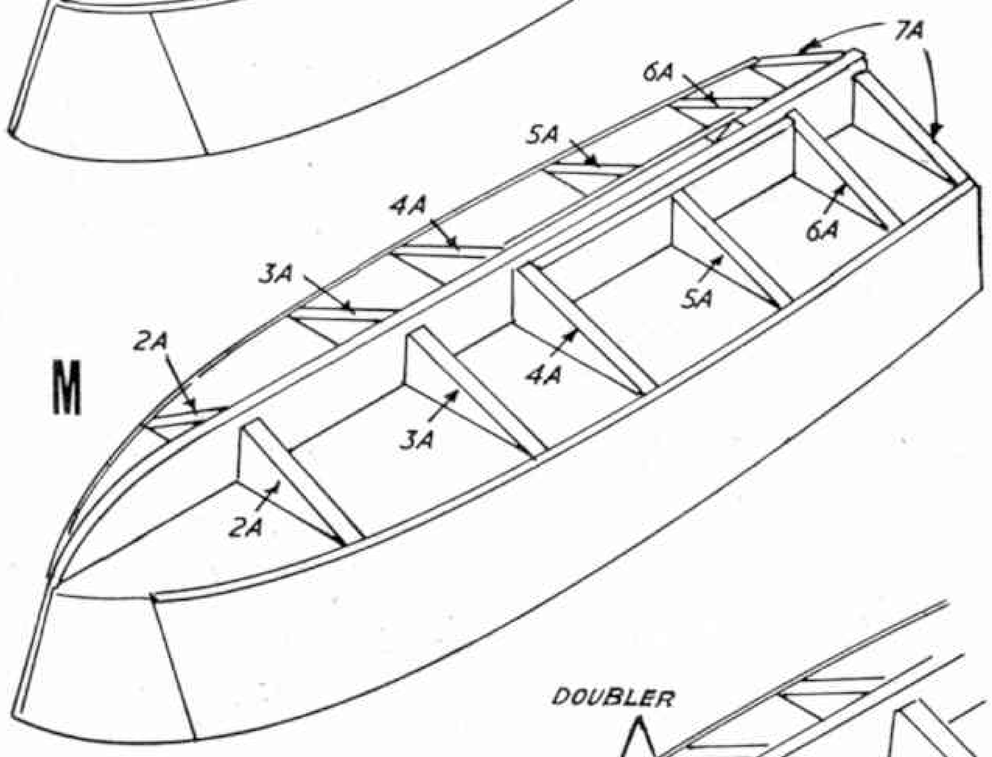
Step 18 Cut two 3 in. lengths from 2 in. by 1½ in. balsa block and cement in position as shown in Fig. Q. When set, carve and sand down to final shape to blend with the hull lines.

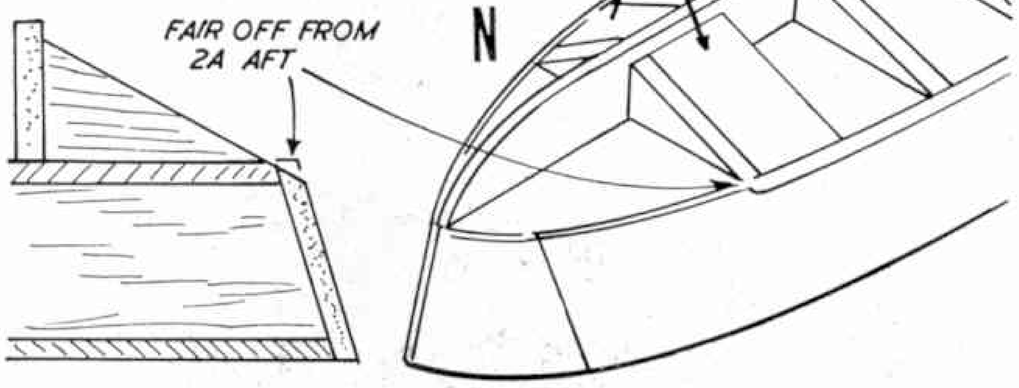
Step 19 Cut the plywood transom (part 7B) and cement to the rear of bulkhead 7, as shown in Fig. R.

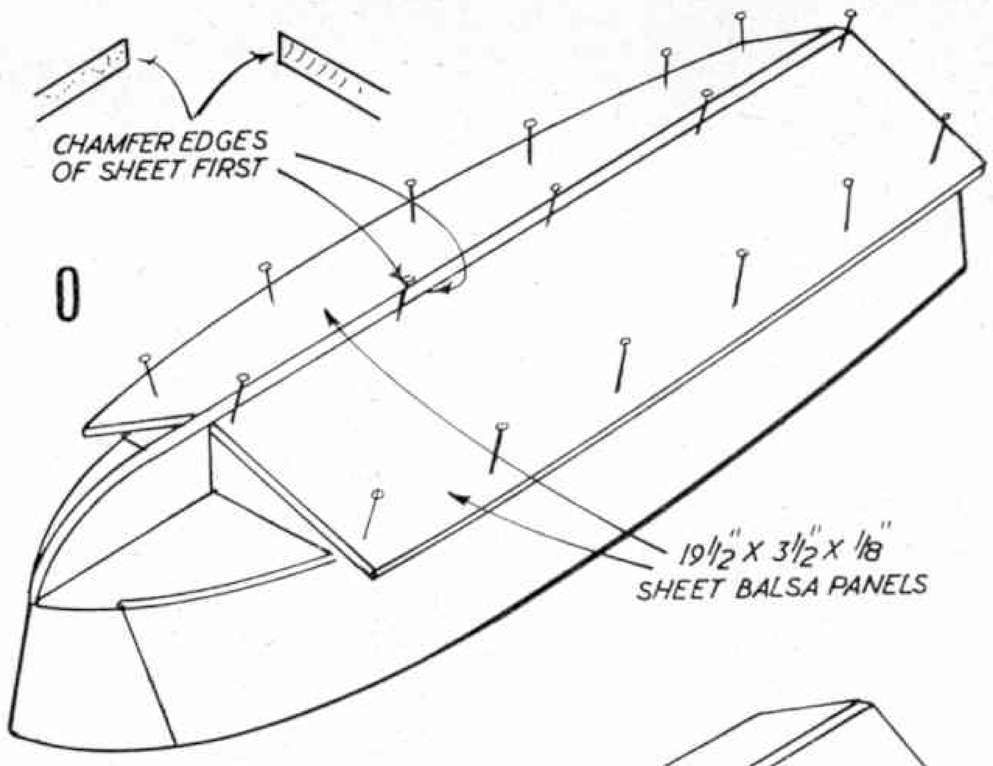


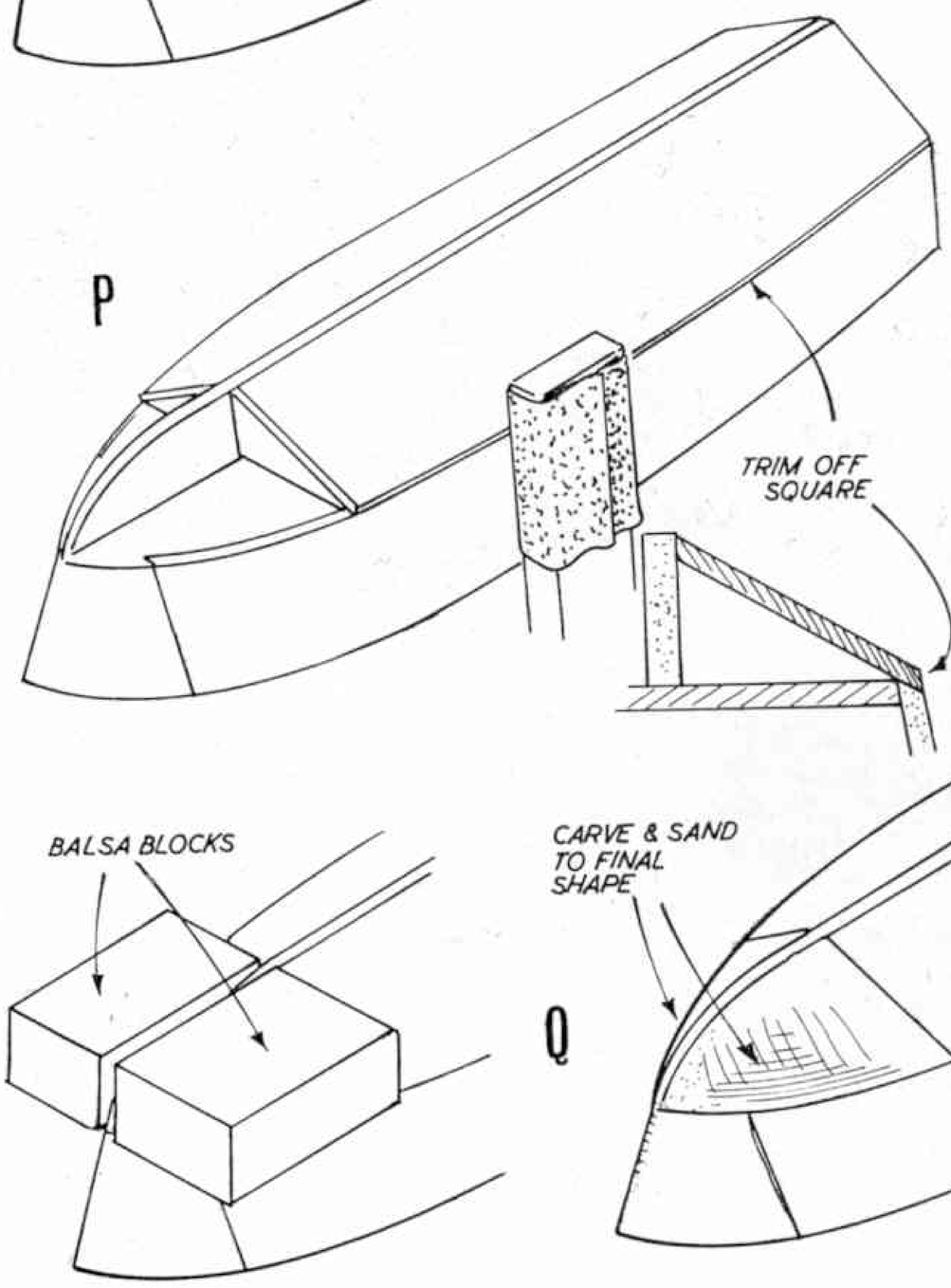


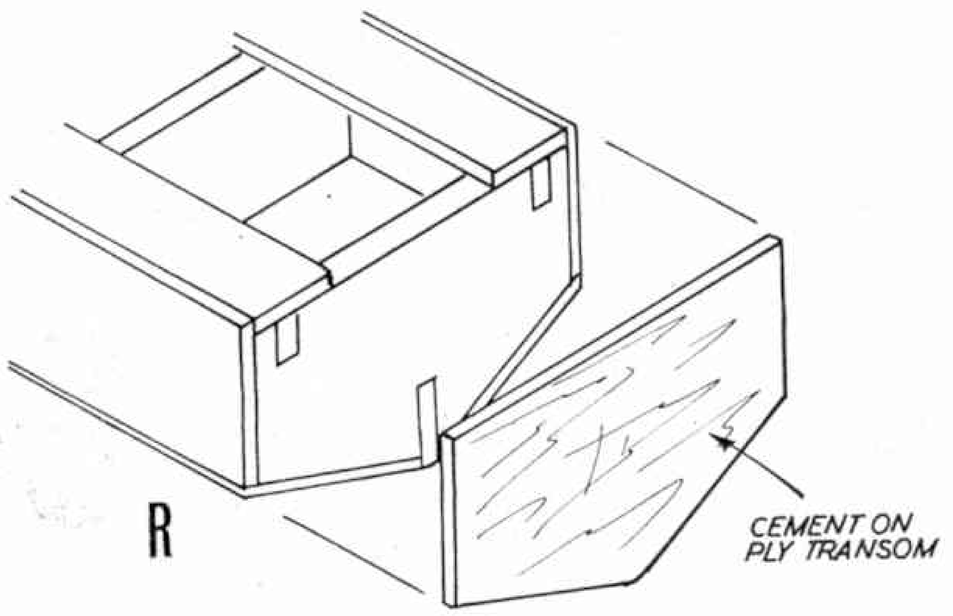












Finishing

The whole hull should now be worked over carefully with fine sandpaper, finishing to an extremely smooth finish. The edges of the chine should be left sharp, not rounded. Where the bottom sheeting meets the keel, however, round off slightly until sheeting and keel blend uniformly. You can also work a little 'flare' into the bow blocks if you like by sanding to a slightly concave surface, but do not overdo this as you may sand right through the side sheeting.

Finally we recommend that the complete hull (bottom, sides and deck) should be covered with thin nylon or heavyweight model aircraft tissue, pasted down all over with tissue paste. This will add considerably to the strength of the hull and also provide an excellent surface for subsequent paint finishing. The little extra time that this job takes is well worth the effort. The Editor is using a cellulose finish and so he stuck his tissue covering on with dope—see photo 6. Polyurethane finishes however, will take better to pasted-on tissue.

NEXT MONTH:—

FITTING OUT AND FINISHING THE HULL, AND MOTORISING.

"Ridin' on a Varnish Stick!"

"In eighteen hunder'd an' forty-one,
The American railway wus begun,
The American railway wus begun,
The great American railway!"

SO begins that old folk song and it goes on to tell of the life—and death—of one of its many builders, a tough old roustabout.

It grew up through the years; the almost endless looking, sleek, silver monsters that drone on for days, across thousands of miles of tracks, are a far call from the old. wood burning 'locos' of a hundred years ago.

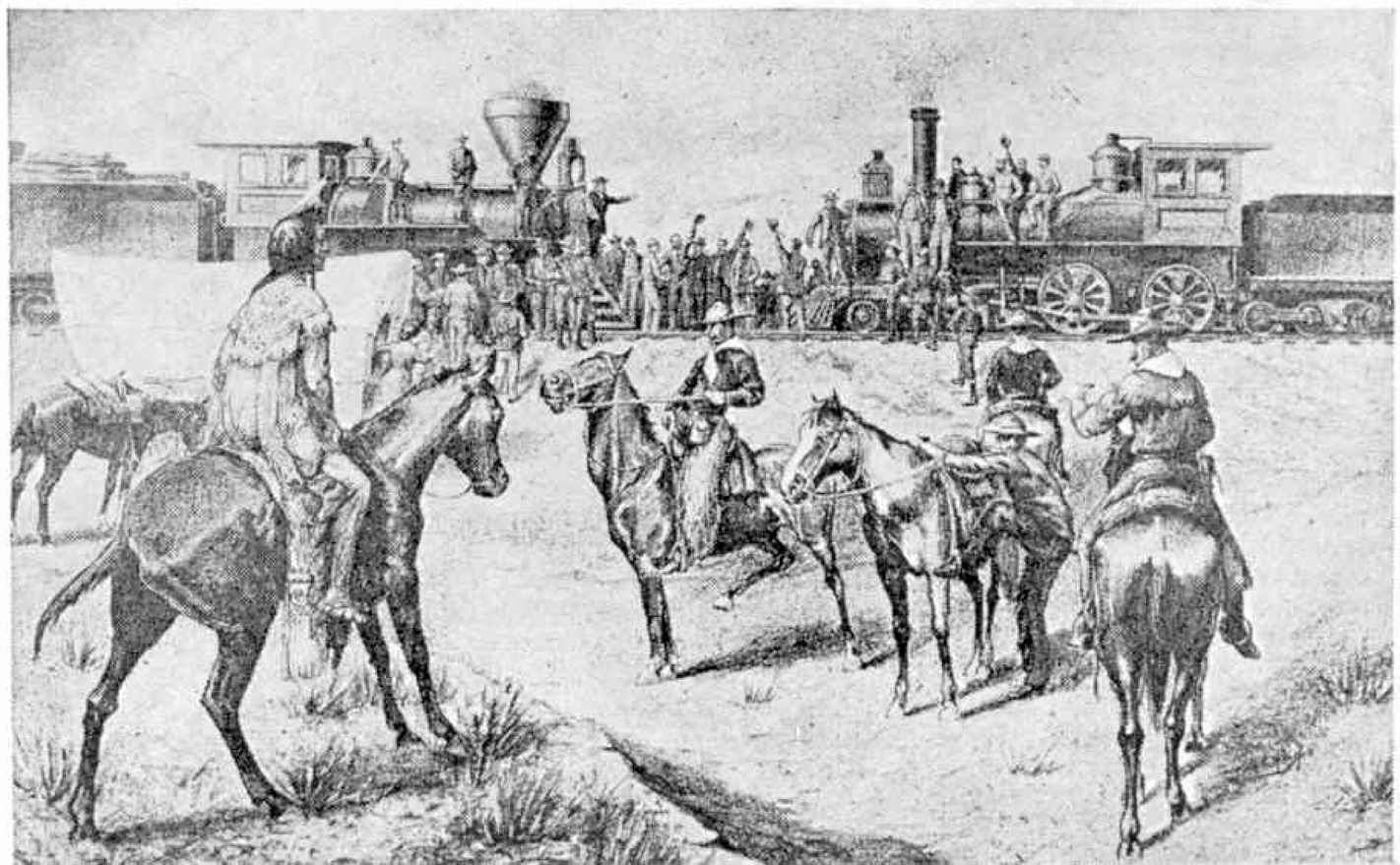
With bandits, train robbers and Indian attacks, plus the natural hazards of storm and snow, or dry, torturous desert plains, crews had to be tough.

Today, the trains are luxurious. First time for a foreigner in New York's Grand Central Station is like visiting another world; whirling escalators, columns of people appearing and disappearing through countless openings like ants in a colony, the rattle and hiss of the giant engines, the babble of tongues only partially silenced by the train announcements, but above all, its vastness—when you are a stranger, particularly a foreign visitor, it is the largest, loneliest place in the world.

And how about their freight yards? They seem to stretch for mile upon mile. Your eyes begin to blurr at the crossing and recrossing lines, at the mass of lights and levers and the endless rows of freight cars, guarded and patrolled by 'bulls', with vicious looking guard dogs and carrying their menacing, night sticks—heaven protect the poor 'bum' who gets caught 'hitching a stick!'

Just in case you managed to get lost somewhere in that last sentence, let me explain that railroad workers in the U.S.A. have a language all of their own. A 'bull' is a railroad guard, or policeman; a 'bum' is a tramp who 'rides the rods' or

Above: the De Witt Clinton, third locomotive built in the United States hauled a train of passenger cars from Albany (New York) to Schenectady (New York), a distance of about 14 miles on August 9th, 1831, in 46 minutes. Horse drawn cars travelled the same distance in about 75 minutes



Right: the day when East and West were united. The scene is Promontory Point, Utah. The occasion—May 10th, 1869, when the last spike was driven to connect the Union and Central Pacific Railroads

'hitches a stick'—in other words he steals a ride on a freight car—if he is lucky, it is in the comparative comfort of a closed wagon, if not, then he has to make do with a shake down in an open freighter—bone chilling in winter.

Railroad men are a race apart; their names can range from Casey to Kowalski, but they all talk the same language—railroadese!

Like the modern version of Casey Jones that took me to see the Superintendent of the large American railway depot.

We were walking alongside the tracks when he spat contemptuously:

'Hey! Jes look at dat short tail—high ballin' dat yard goat up de garden!'

I asked him to say it again. He did! I was just as wise.

When I repeated his words, carefully, to the 'Super', he grinned broadly.

'You got it right!' he said, 'a "short tail" is a non-union worker—they aren't very popular with the union men. To highball a yard goat up the garden means he was driving a small shunting engine, very fast, through the goods yard.'

I nodded—but a chap that could talk to me in English(?) and yet I still couldn't understand him—well!

'Come an' have a look round the garden!' said my new guide.

As we came past the offices, an engineer emerged, studying a piece of paper very intently.

'Thass a hog mauler glimming his flimsy!'

I looked at him curiously.

'It means the train driver, or engineer as we call them, is studying his train orders.'

I nodded.

'Then what?'

'Oh! He'll highball his consist up the high iron to Chi.' He grinned at my helplessness, 'In other words, he will drive his train, consisting of mail and passengers, at full speed along the main line to Chicago.'

We passed into the repair sheds.

'That's a drag come in with a hot box!' the Super shouted above the hammering and hissing.

'I know what a hot box is,' I yelled back, 'but what on earth is a "drag"?'

He shrugged despairingly, then patiently explained that it was a slow freight train.

Patiently, he interpreted more terms for me; the 'hoghead' or 'hog-mauler' was the driver. Then comes the 'tallow-pot', or fireman as we know them. The rest of the train crew were the 'head-shack', 'swing-shack', and the 'rear-shack'—the conductor and front and rear brakemen. They ride in the 'bouncers', 'brain cars', 'crummies', or just 'cabooses'—brake vans!

All the time we had been walking round I had noticed a lengthy passenger train standing empty. I asked him about it.

'Yeah! Well, thass a "varnish stick" held up by the "hog law".'

He went on to explain.

'All passenger trains are "strings of varnish", or "varnish sticks", it's a relic of the old days when passenger coaches were elaborately painted and varnished.'

I looked again at the gleaming aluminium and glass of the coaches and shrugged.

'And the "hog law",' I questioned.

'It's a Federal regulation that prevents a train crew from working more than 16 hours at one stretch!'

They have their labour problems, too!

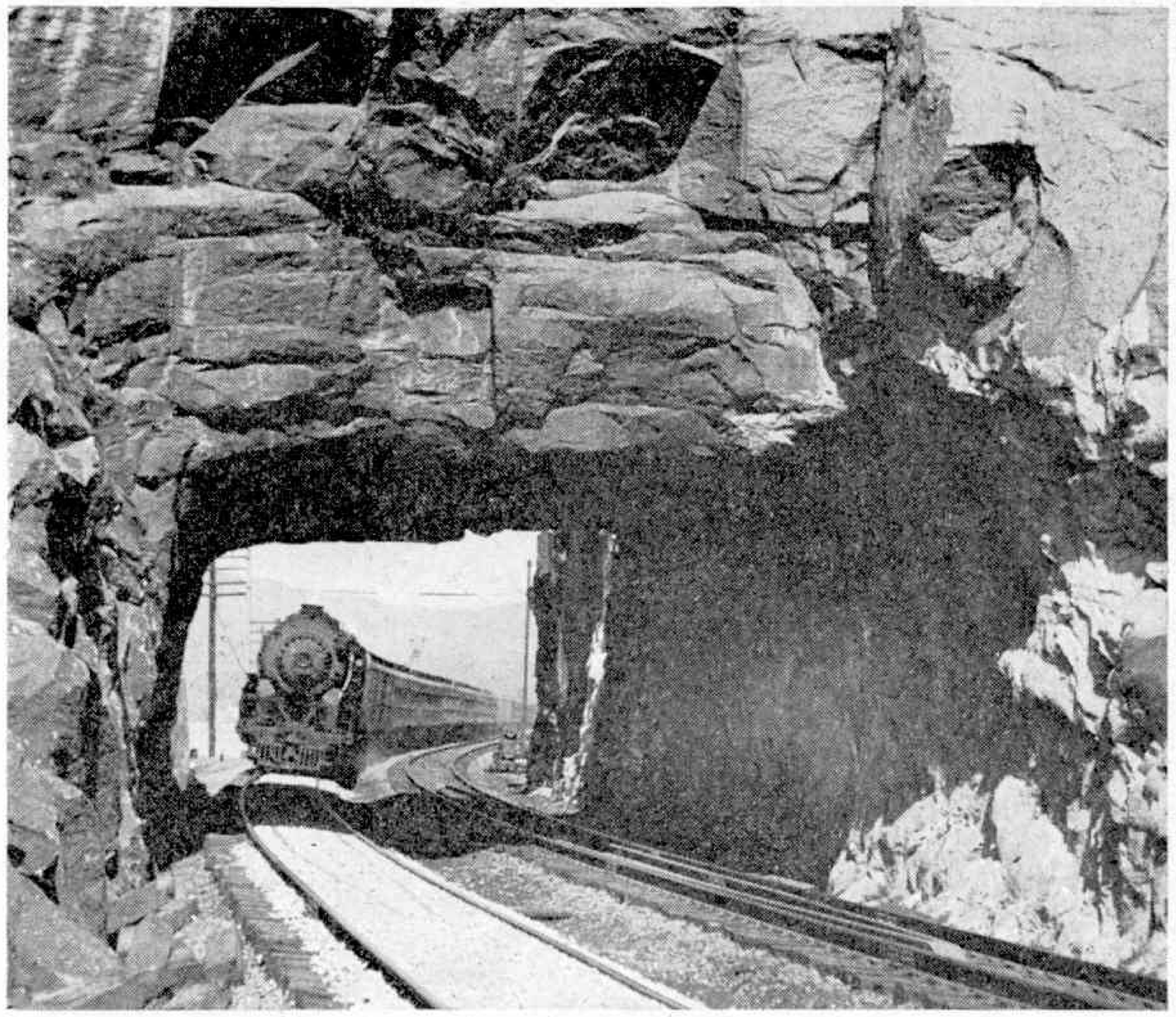
As I was leaving the depot, two hefty railway policemen were dragging a weedy looking tramp through the gates.

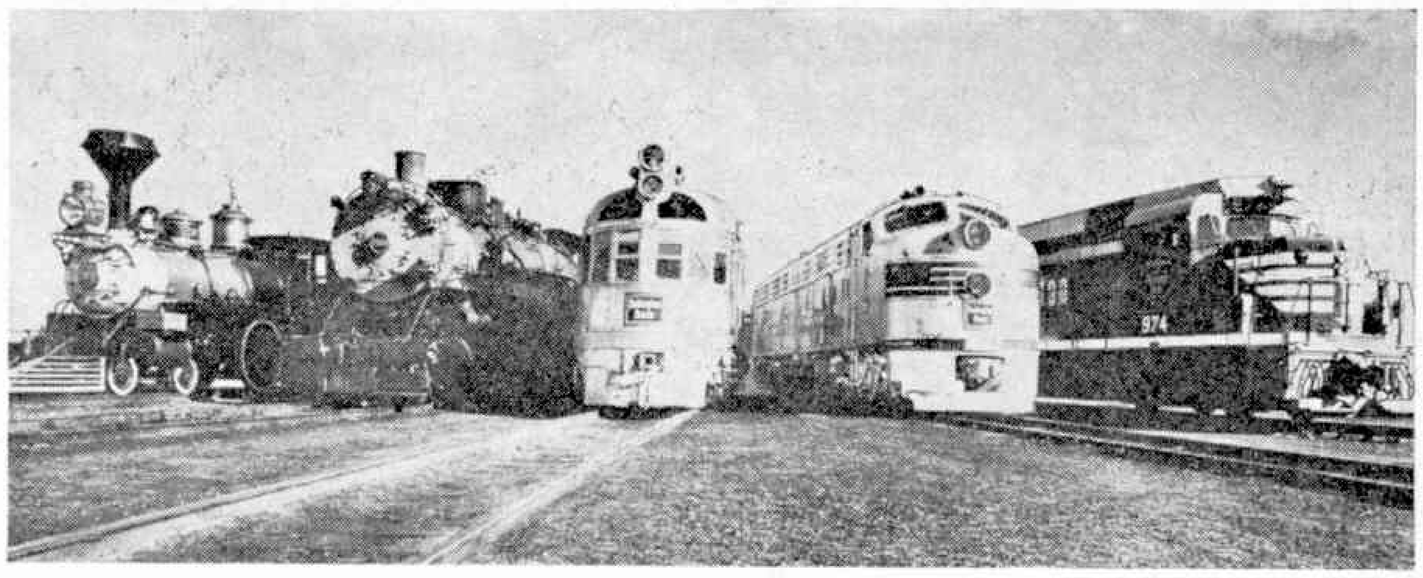
'A "bum" that's been "riding the rods"?' I ventured.

The Super grinned, then nodded agreement.

'You're picking up "railroadese"!' and with a casual, two-finger salute, he left me—still with my mouth half open in amazement.

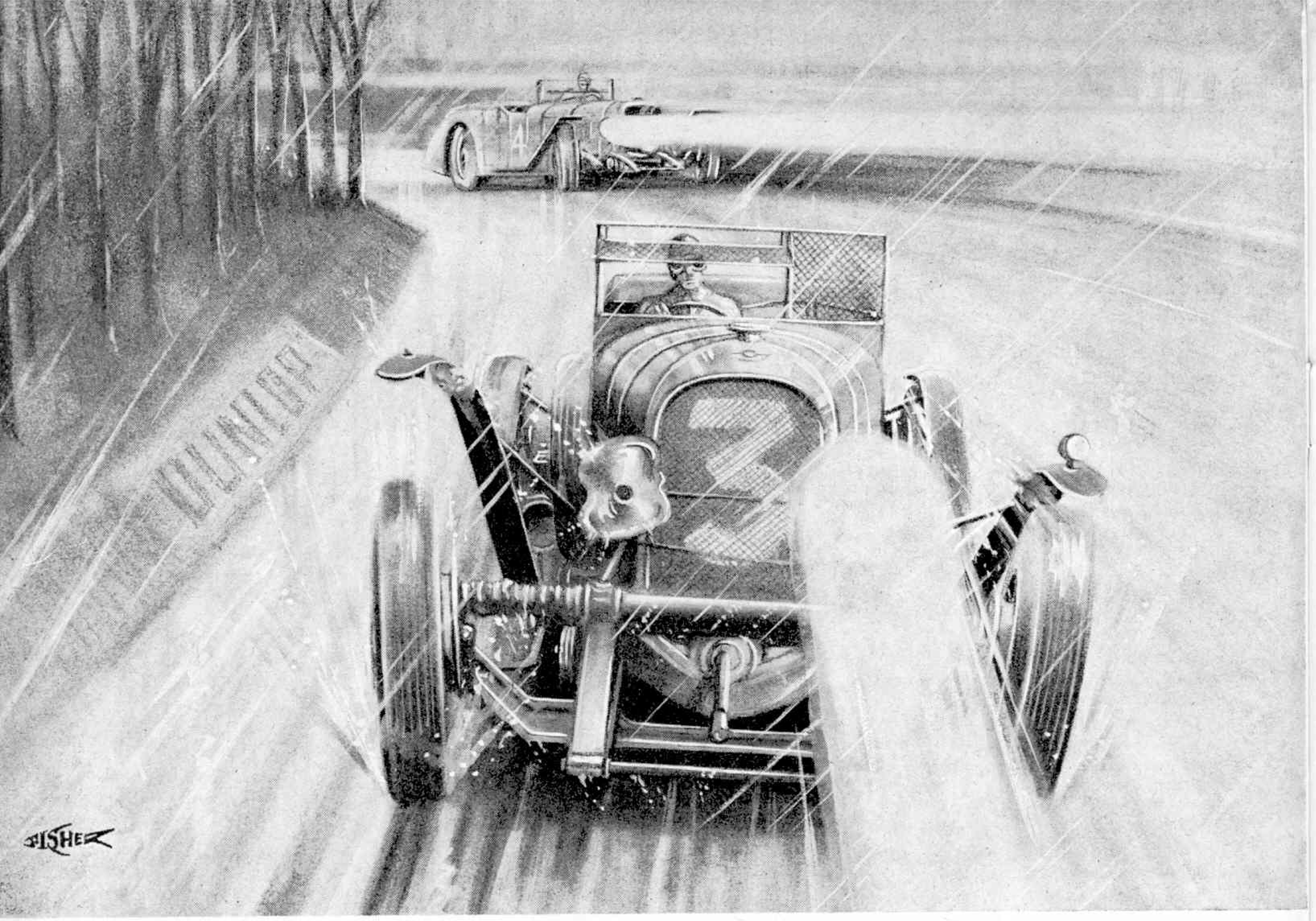
—H. J. Summers





Top: hammering round the banked curve to enter a cut in the Hudson River Highlands made of solid steely-hard granite. Such was the hardness of this material that when the road was built in 1848, it took a full day to cut an average of 18 inches into the rock. Mansell Collection Photograph

Above: more of a century of U.S. locomotive progress is evident in this recent line-up of Burlington Railroad motive power. From left: the Diamond Stack No. 35, typical of wood and coal burning locomotives in use from 1850 to well in the 20th century; the coal-burning 4960 Mikado type, built in 1923 for freight train service; the Burlington Zephyr diesel locomotive powered the first stainless steel streamlined train, introduced in 1934; the General Motors E-19 passenger unit, used today on high speed Zephyr passenger trains; and the General Motors turbocharged GP-5 locomotive for fast freight service, built in 1963



It was No. 3—its lamps a twisted mass of bent metal and broken glass . . .

OLD NO. 7

BY WALKDEN FISHER

AS the shadows lengthened over the Le Mans circuit on a warm summer's evening in June 1927, the many thousands of spectators round the 10·726-mile course, and in the stands at the start and finish area, began to prepare and fortify themselves for the hours of darkness that lay ahead. Meanwhile, on the track, the cars continually droned by at infrequent intervals, their raucous exhaust notes mingling with the chatter of conversations in many tongues, and the cheery clatter of cutlery and glasses as the hungry crowds drifted into refreshment tents for an evening meal.

Le Mans was, and still remains, unique. The annual 24-hours race held on the road circuit situated on the outskirts of the ancient city of Le Mans, chief town of the Department of the Sarthe, attracts global attention. No other motor sporting event creates such interest, nor such fierce rivalry among the nations whose factories compete for world markets in the export of automobiles. It was inaugurated in 1923 as a competition between high-speed touring cars under an approximation of touring conditions, and it is true to state that the race has done more over the years to develop the sports, and later the Grand Touring car, as we know them today, than any other similar event.

Once a year the quiet of the French countryside in this region is broken by the noise of powerful, high-speed machinery, and the gay jollifications of side-shows and fun fairs that spring up for the period of the race. Throughout the night pleasure-seeking crowds throng the brightly-lit fairgrounds and refreshment tents which provide a secondary attraction to the cars that are continually streaming round the circuit with headlamps blazing.

In 1927 the course was longer than it is today, and for the first 214 miles of that year's race the field of 22 competitors had to circulate with the hoods of their vehicles raised—as one writer has described the scene—'The picture was very much that of so many flapping army tents following one another round the course'.

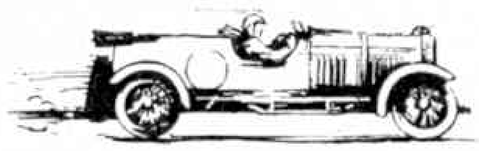
The main interest in this, the fifth event of the series, centred round the big machines, and among them the British Bentleys formed a three-car team with respective numbers 1, 2 and 3 painted boldly on the grilles of their distinctive

radiators. It was to be, as events turned out, a most exciting and dramatic race. Even today it is still regarded as being one of the most outstanding in the long history of Le Mans. For the Bentley team it proved to be a race of appalling bad-luck, of sheer determination and incredible driving.

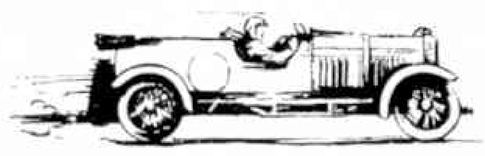
No. 1 Bentley was a 4½-litre machine driven by Clement, the Bentley test driver, with L. G. Callingham as co-driver, and No. 2, a 3-litre car, had Baron D'Erlanger and George Duller as pilots. The third Bentley, another 3-litre model, although bearing No. 3 was more affectionately known by the team as 'Old No. 7', in memory of its race in the 1926 Le Mans, when, after crashing into a sandbank at Mulsanne, due to failing brakes in the last twenty minutes, it was forced to retire. Its drivers during that race were Sammy Davis and Dr. Dudley Benjafield, and the same pilots were driving the old veteran in 1927.

From the start, the three big, green British machines had led the race. Each time round, as they approached the pits, they signalled their arrival by a pre-arranged code to their team manager, W. O. Bentley himself—One long blast on the horn for No. 1 car, two from the Baron's machine and three for that of the Davis-Benjy car. This was a most useful code, particularly at night when the control in the pits sometimes had difficulty in seeing the racing numbers.

The order was Clement, Benjy and D'Erlanger as they sped through that summer evening. Behind them a big 3-litre Aries, driven by the Frenchmen Laly and Chassagne, who were regarded as the main threat, was swopping its position from fourth to tenth, and back again, and completely mystifying the opposition with its manoeuvres.



Soon after 7 p.m. the Bentley drivers drew into the pits—Lowered their hoods and were off again. As the daylight faded into dusk, one by one the competitors switched on their headlamps, and the long line of the pit area became suddenly illuminated with gay multi-coloured lights along the side of the track. In the pits, the progress of the race was being followed closely, and the lap times carefully noted. A glare of headlights and a blare of a horn would denote the passing of No. 1, then moments later the other team cars would snarl past. All three lapping with clock-work regularity. At this period the race perhaps was rather unexciting — Then, suddenly a dramatic change occurred! Down in the pits anxious eyes were straining up the road—No. 1 was over-due! No sound of approaching cars could be heard. Now No. 2 was due—Still no sound or sign of any cars! Rumours of a multiple pile-up at White House corner flashed through the stands and pits and the crowds left the restaurants and bars amid a buzz of speculation and foreboding to file back to their positions at the trackside. The minutes passed. Then, faintly at first, but gradually growing louder, the growl of a single motor heralded the approach of someone, but who? Of the car's lights there was no sign. However, as it slowly crept into the blaze of illumination at the pits it became barely recognizable as No. 3 with Davis at the controls. Its lamps were a twisted mass of bent metal and broken glass, and the right mudguard and running board were almost torn off. Miraculously the battery, although only hanging on by a thread to the side of the car, still functioned, and had enabled faithful 'Old No. 7' to stagger to the pits. There was no public address system at Le Mans in those days and Davis himself was the bearer of the news—There had been a three-car crash at White House corner and the road was blocked!



Apparently a Schneider, with Tabourin at the wheel, had hit a farmhouse wall, and the car had bounced back to lie broadside across the road. Callingham in No. 1 Bentley, swinging into the bend moments later had skidded into a ditch in an attempt to avoid the wrecked Schneider, and another car—a Fasto—roared past within inches, skidded, spun and stopped down the road, facing the wrong way! No. 2 Bentley, at this period driven by Duller, in taking avoiding action, also shot into the ditch where it crashed on to No. 1 and bounced the latter back on to the road. Callingham had fortunately been thrown clear when his car first skidded out of control. Meanwhile Duller was catapulted over a hedge into a field. The road was strewn with wreckage and completely blocked, except for a few feet.

A broadside

This was the scene as 'Old No. 7' roared up! Davis saw some splintered wood on the roadway in the beams of his headlights just before the bend, and he immediately slammed on his brakes. Round slewed the big Bentley, skidding broadside to strike the pile-up with a crunch of metal! Out leapt the driver to search for the others in the darkness—Not one of whom had been badly injured despite the series of devastating crashes, and as Callingham ran back up the track to warn the other approaching competitors, Davis managed to get his stricken car into motion and slowly drive to the pits.

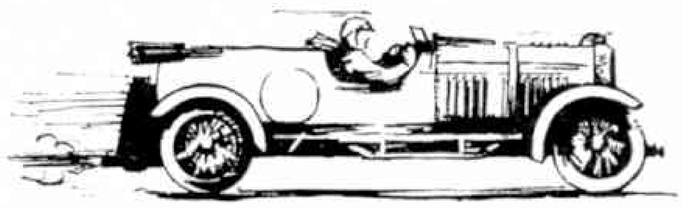
Within a few frightening moments the whole pattern of the race had been changed. Somehow the forlorn old wreck, No. 3 Bentley, was coaxed into further action—Davis would not give up! A wheel was changed, another headlamp was strapped on, and the battery was roped to the running board. The engine apparently was undamaged and with a challenging bellow the car again shot away into the night, during which, to make conditions even more miserable, a thin drizzle of rain developed into a deluge.

Later Benjy took over the car and kept it circulating at a steady speed, but the main opposition in the shape of the French Aries was by now six laps ahead and speeding to almost certain victory.

The battle

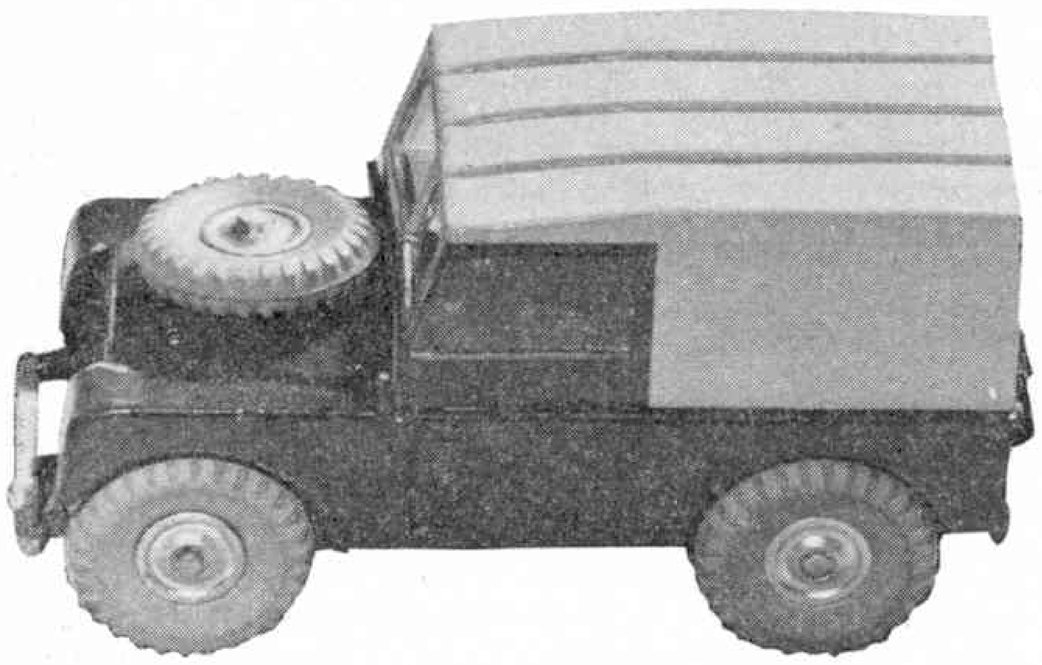
As the dawn broke, and the early morning mists swirled away, the positions remained unchanged, but the dogged Bentley drivers continued their pursuit in a car that appeared ready to drop to pieces at any moment. Fortunately the weather improved as the day progressed and the Aries maintained its lead and was going well. Suddenly, as it passed the pits, the Bentley mechanics noted an almost imperceptible change in the sound of its engine—Something was wrong! Immediately the 'Go Faster' signal was put out for Benjy and the amazed doctor, on seeing this from the cockpit of his clanking vehicle, decided to chance it—He put his foot hard down!

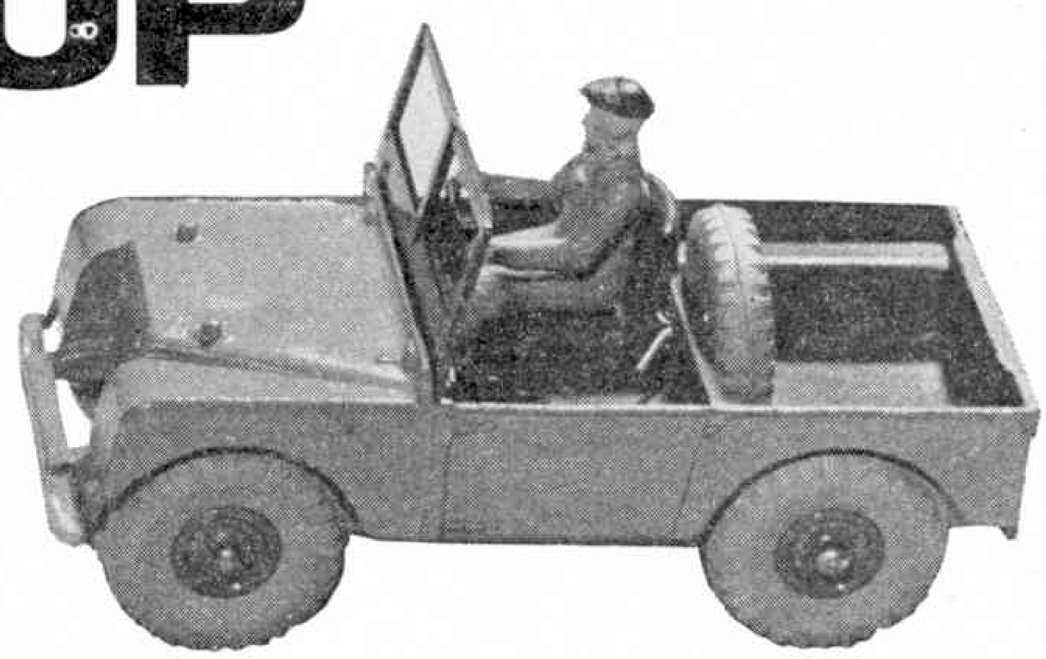
By early afternoon the gap between the two cars had been reduced to four minutes, and the Aries sounded rougher every time it passed the pits. Could the old, crippled Bentley possibly catch it? The spectators, though enthralled by the epic battle that was being enacted, were convinced that the French car would win. Lap after lap the pursued and the pursuer screamed round the circuit, and the incredible Benjy managed to coax even more speed out of his battered old vehicle. It was now a two car race as far as interest was concerned. In the Aries pit the mechanics urged their driver to greater effort and Chassagne responded to the best of his and the car's ability. With only an hour and a half to go the French machine cracked! The pressure had been too much and it ground to a halt at Mulsanne. 'Old No. 7' flashed past into the lead, its engine humming on a triumphant note, and fifteen minutes before the end of the 24 hours, Dr. Benjafield drew into the pits to hand over the wheel to Sammy Davis for the honour of taking the chequered flag. Amid tumultuous applause from the great crowd the wobbling machine clattered its way to the finish and a well-merited victory. In so doing it commenced the golden era of the British Bentleys at Le Mans.



Mike Rickett shows how to make a simple yet effective hard-top for your Dinky Toy Land Rover in

OPERATION COVER UP





OF all the vehicles in the Dinky Toy range that readily lend themselves to customising, the Land Rover (Dinky Toy 340) is probably the easiest to work with. This month I am describing a simple hard-top conversion which can either be glued in position permanently, or just clipped on the model—whichever you prefer.

First of all, however, a little preparatory work must be carried out on the Land Rover itself. This merely involves the removal of the windscreen and repositioning the spare wheel (fixed behind the front seat) to a position over the bonnet. It is best to complete these two operations before beginning the construction of the hard-top itself, so that it can be checked for size against the model at every stage of the construction.

The tools required for this project are usually available to most modellers. They include a vice, modelling knife, razor saw or back saw, flat needle file, hand brace, $\frac{1}{8}$ in. and $\frac{1}{16}$ in. drills, 30 thou. Plastikard (clear and opaque), solvent, pliers, contact adhesive such as Bostik I, rule and steel straight edge.

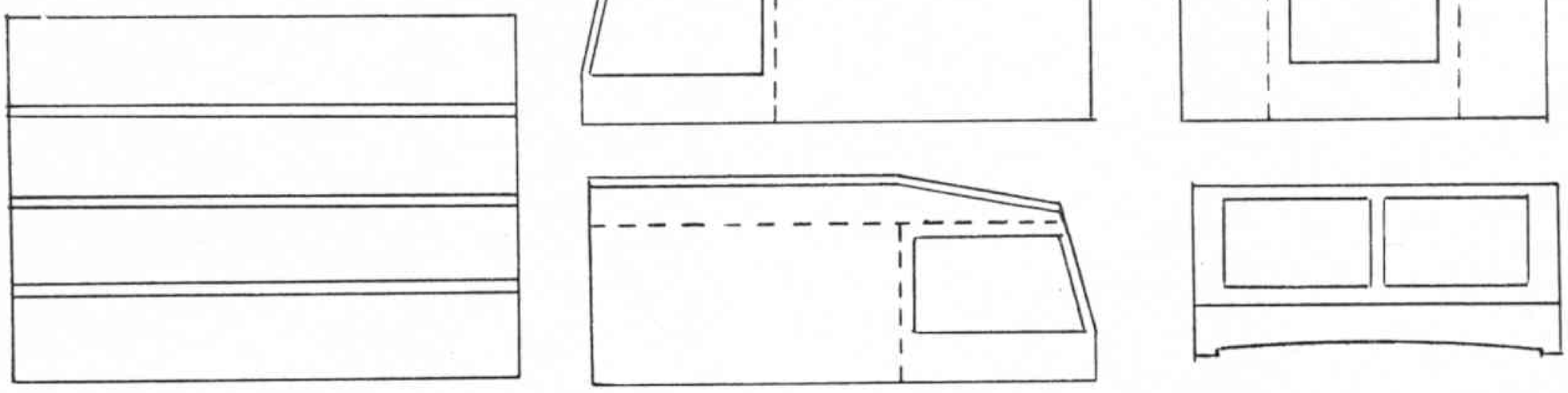
First remove the front windscreen, using for this purpose a small pair of pliers, a needle file, and a $\frac{1}{8}$ in. drill. The windscreen cannot, unfortunately, be taken out until the front wheel and axle retaining plate, immediately underneath the front end of the model, has also been removed, and it will first be necessary to drill out the rivet holding this plate to the body casting. You will find it easier to do this if the needle file is used to file a flat on the rivet, so that a 'pop' mark can be made to help avoid the drill wandering. Using the $\frac{1}{8}$ in. drill, carefully place on the rivet and drill out so that the retaining plate can be lifted off, exposing the front wheel axle which can also be removed.

Underneath the wheel assembly, you will see the lower half of the windscreen plate, bent round in a right angle to connect with the pillar supporting the wheel retaining plate. Taking a pair of pliers, bend the lower end of the windscreen as straight as possible, to allow it to be pulled upwards through the slit in front of the dashboard and discarded, since it will not be needed for the remainder of the conversion.

The spare wheel behind the driving seat, which is held on by a round spigot bent in a right angle in the front half of the jeep can next be attended to. Do not, however, try to straighten this with a pair of pliers because there is the possibility of causing damage to the body casting. Instead, twist the wheel upwards and over the top, so that it lies flat on top of the dividing partition. You will find that both wheel and rivet can then be removed and placed to one side. Do be careful not to lose the round spigot though, because this is needed to attach the wheel to the bonnet.

Taking the $\frac{1}{16}$ in. drill, find the approximate centre of the bonnet and drill a hole about $\frac{3}{16}$ in. deep. Place the round

Full size drawings of the basic parts required for the hard top



1 *Drilling out the rivet holding the wheel retaining plate in position*

2 *Bending the lower end of the windscreen plate straight to allow it to be removed*

3 *Drilling a hole in the bonnet for the spare wheel*

4 *Glueing on the roof of the hard top with Styrene solvent*

spigot in a vice, and with a razor saw cut off all except $\frac{1}{4}$ in. This can then be pressed through the wheel, and with a contact adhesive glued into the hole in the bonnet. When this has been done the front wheels can be replaced and the retaining plate glued back into position with the same contact adhesive.

The hard-top body can now be built using parts cut out from 30 thou. white Plastikard or other styrene sheet. This material incidentally, is superior to ordinary cardboard for many modelling jobs, and you will find it easier to cut and glue. It is, in addition, stronger and its greatest advantage is the cleanliness with which it can be worked. When joining two pieces together, for example, it is only necessary to place the two parts against each other, brushing the joint with the special solvent. After only a few seconds, a bond will result, which you will find quite strong. The strength of the joint continues to increase the longer it is left.

The five parts that form the hard-top are shown in the drawing, and they should be drawn out on the white plastic sheet as accurately as possible. They are 'cut out', by deeply scribing the sheet with the modelling knife and then cleanly removed by simply 'snapping' the sheet! The three parts containing windows will need more care, and I would suggest where windows are concerned that you cut them out *completely* with the modelling knife before cutting the main outline. Use a steel rule to ensure crisp, clean straight outlines.

Once all four sides have been cut out, they can be glued together with the special solvent, or a polystyrene cement, but first a word of warning. Check that the three pieces are the correct length and width before they are glued together, for the drawing makes no allowances for the thickness of the card itself. You may find it necessary to cut the equivalent thickness of the side or end for them to fit properly. Other lines on the drawing represent those that should be followed for gaps in doors and panels, and when doing this I would advise running the back of the modelling knife blade along the card to give a wider mark.

Fitting the top

Once the four parts are glued together, pieces of clear plastic can be cut for windows. If this material is of the same type of plastic as normal Plastikard, the same joining solvent can be used. The roof is the next piece to be cut from the plastic sheet, and although it is possible to glue this on in one piece, you will find it easier to cut it in two pieces, to allow for the slope of the roof from the back of the cab door to the front. As before, glue both on with a solvent, and make sure that all ends are flush with the sides of the vehicle.

Three strips of plastic 1 mm. by $\frac{1}{2}$ mm. in section will be needed for the roof, and should be spaced at equal distances apart. Allow all the joints to dry *thoroughly*, then, with a very fine grade sandpaper, smooth the edges of the roof to give a slight curve, and also smooth over the join of the two pieces near the front of the roof.

To allow the hard top to be clipped onto the jeep, it will be necessary to cut four narrow pieces of card, each of which are glued to the inside of the hard top. The size of these pieces is not really important, but they must project down about $\frac{3}{32}$ in. to allow the hard top to be clipped on. All that it is necessary to watch out for is the rear window which must not, of course, have any card projecting beyond its edges. This also applies to the windscreen should you wish to strengthen the sides. The foremost of the retaining pieces should be glued to both sides of the hard-top, and to strengthen this piece, you might find it worth while to glue an additional piece behind.

Before painting the top, check that it fits onto the body in a satisfactory way, and then paint in a colour scheme of your own choice, with the windscreen frame silver.

Realism in a model railway is a very subtle thing. Some can never seem to achieve it—others hit the jackpot every time. JACK SHORTLAND is one of the latter, as you'll agree on examining these pictures of his nearly-complete timber yard

A YARD OF TIMBER

IN nine cases out of every ten the model railway builder will find himself with an odd corner or extra bit of territory that must become either part of the model railway scene or be blanked off and disguised, to prevent the void from becoming an eyesore and therefore spoiling the overall picture.

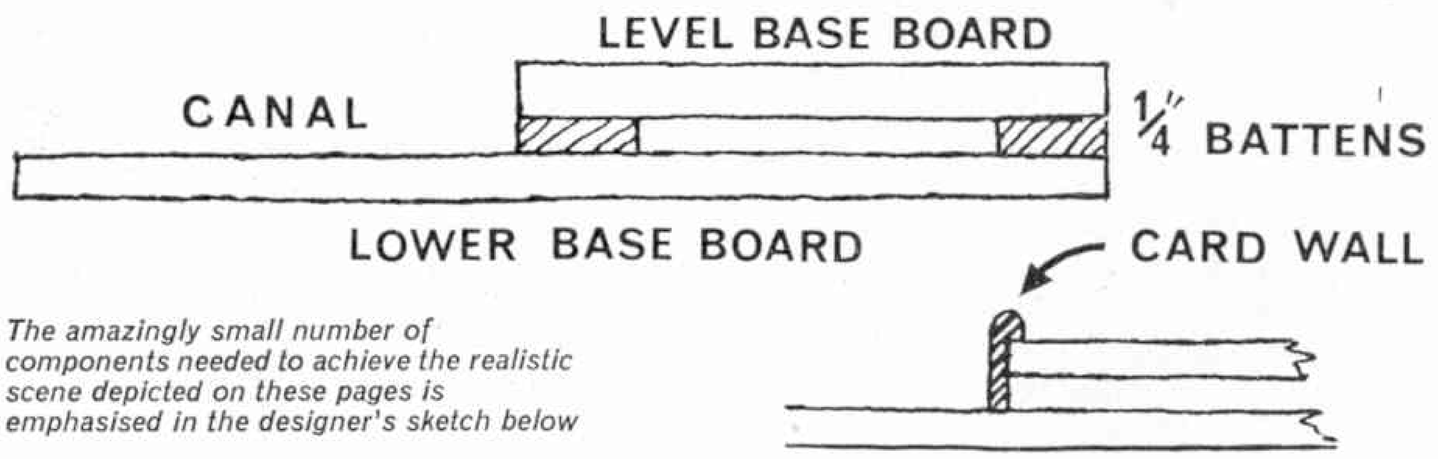
I was presented with this problem when building my model railway in the newly acquired spare room. This room had a narrow recess at one side, caused by a large chimney breast, this recess measured 48 inches deep and 18 inches wide—to blank it off and build scenery up to it was a thought that was soon discarded as a waste of time and space.

The answer

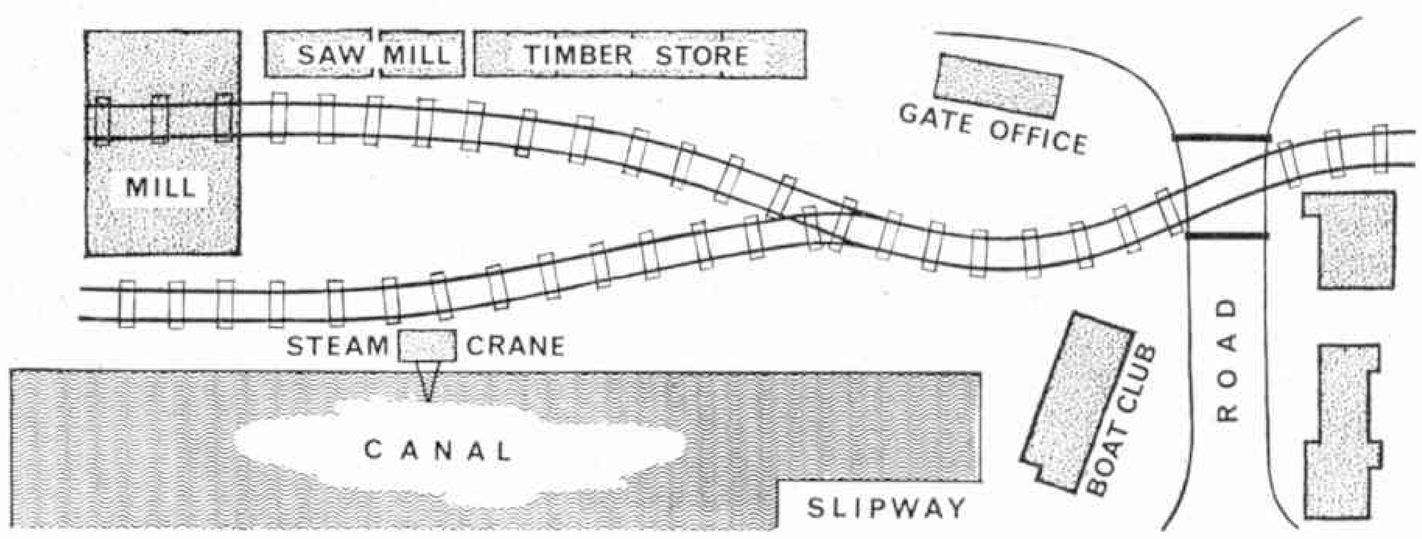
So two new trestles were built to which I screwed a base-board the same size as the recess, and the top of the base-board was arranged to be $\frac{3}{4}$ inch below the surface level of the main base-board. A further two pieces of board were cut, one thirty inches by ten inches and the other eighteen inches square. These two, with battens to make them the correct height, were nailed to the lower section on the wall side. The upper, or level, section was (after much thought) to become a fair sized timber yard, served by both the railway and a canal, the latter of course being the lower base. With the base-boards in position, sky paper was pasted around the recess and I followed this with street scenes cut from Hambling's backdrop sheets.

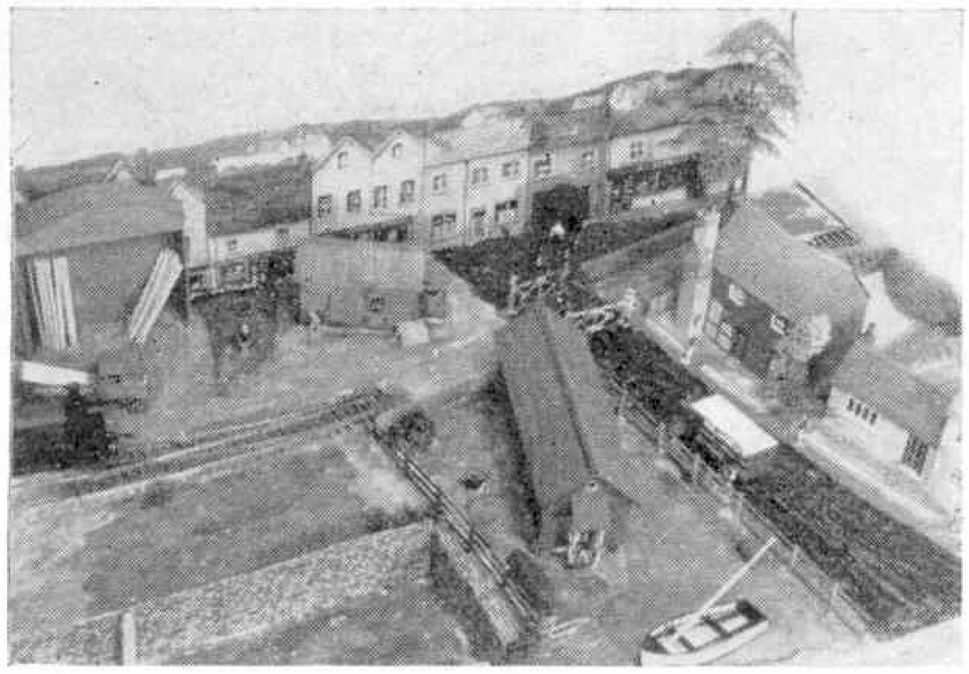
Track work was next. I had some lengths of Wrenn flexible scale track and a couple of Wrenn points on a curve, left over from the building (or shall I say laying?) the main line, so, as I find this trackwork most satisfactory in every way, I decided to use one of these for my new timber yard. The next job was the canal dock walls; these were made from thin card, 1 inch wide with about $\frac{3}{8}$ inch of the top bent over. Stone paper was glued on, then the card was glued on to the dock side, and when firmly in position I glued some short lengths of $\frac{1}{8} \times \frac{1}{16}$ stripwood (at about two inch intervals) to the dockside to represent baulks of timber: these are to prevent damage to both boats and the dock face.

With the track laid and the dock walls finished, the next job was to mix a supply of plaster. Altogether, I used $1\frac{1}{2}$ small packets of Polyfilla! It was mixed to the thickness of cream and using a small

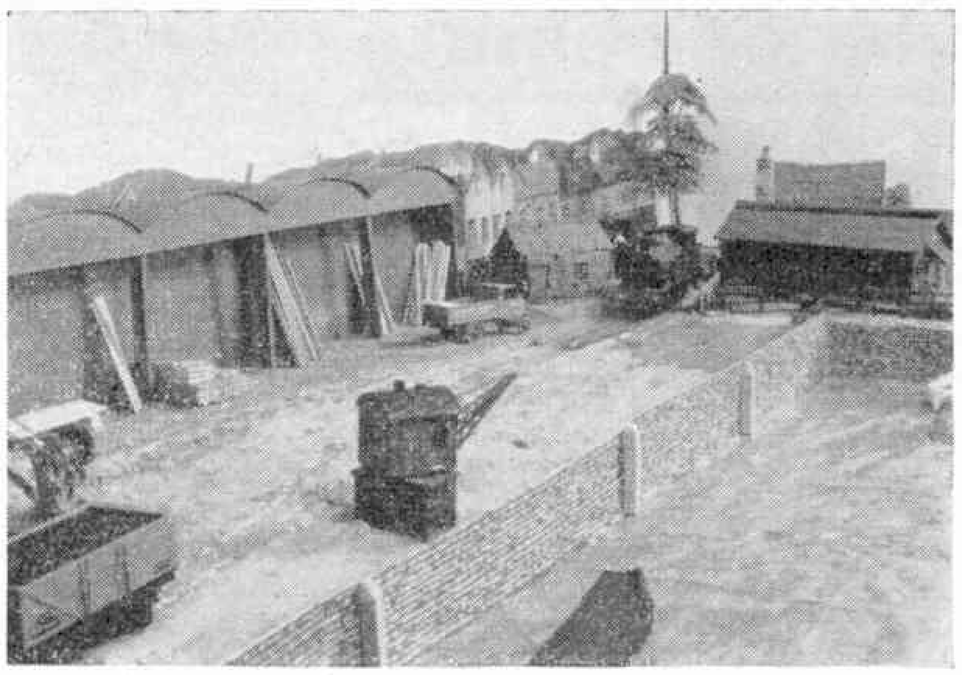


The amazingly small number of components needed to achieve the realistic scene depicted on these pages is emphasised in the designer's sketch below

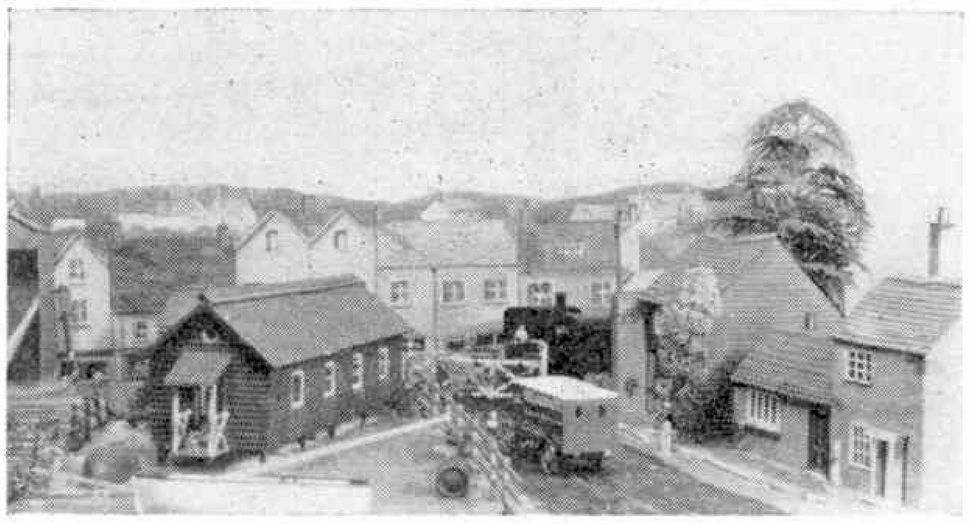




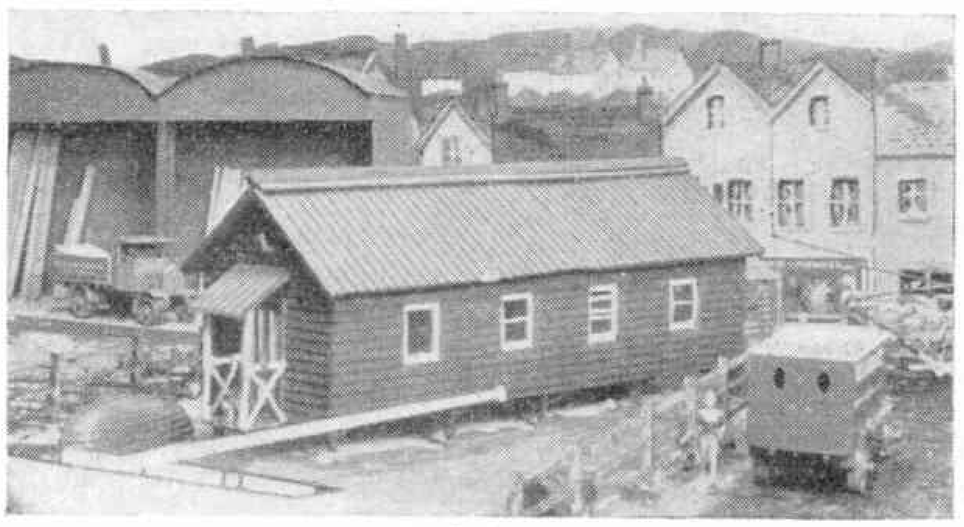
Bird's-eye view showing the 'clean' pointwork



The dockside steam crane adds much interest



The cottages are simple yet full of character



Realism is the result of observation and patience

trowel and a 1 inch paint brush, I spread it all over the base-boards and over all the track, *except* the point; this was kept clear of all plaster, from the frog to just past the tip of the point blades. All moving parts and inside the check and wing rails must be clear, for the passage of traffic in any direction, also the insides of the point blades where they meet the running rail, for the continuity of the electric current.

With the brush slightly damp, it will be possible to level out the plaster so that it covers all corners and nooks and crannies. For the canal, tamp the plaster with the edge of a piece of $\frac{1}{2}$ inch insulation board; this will give just about the right effect of wind-ruffled water.

Buildings

All the buildings on this section have been built from wood and Plastikard. The first and largest building is the machine shop where the timber is made into various mouldings; doors are also manufactured. The complete building is just a blank shell of Plastikard, except for the roller shutter door over the rails and the large boards, the former is scribed $\frac{1}{32}$ inch ply whilst the latter is plain card. The second building is the band-saw shop for cutting logs into planks, both these structures were covered with stone paper. Next are the timber storage sheds, easily recognised by the curved roofs; again these are entirely of Plastikard and cut from one sheet, the whole painted a dark grey and small pieces of timber stacked inside.

The gate house and boating club house are made of thin wood, and the two houses across the road are likewise built from Plastikard.

The locomotive and two wagons in the photographs are Hornby-Dublo, the lorry and van are Lesney's Yester-Year models. The horse-drawn van is Slater's, the steam crane and pedestrians are from Playcraft, and the hand crane is from the G.E.M. range.

There's such a lot that you can do with that odd corner—I hope my suggestions may, perhaps, set you thinking and *making* your own timber yard.

DECEMBER DINKY TOY WINNERS

BELOW is a list of fifty names of readers whose entries for last month's 'Silhouette' competition were the first correct answers to be selected by the Editor. If your name appears in this list, then write on a postcard to: *Silhouette Prize, Meccano Magazine, Thomas Skinner & Co. Ltd., St. Alphage House, Fore Street, London, E.C.2,* and claim your FREE Dinky Model Vauxhall Victor Estate. If your name does not appear in this list, even though you entered for the competition, don't be too disappointed—try again!

R. Ackroyd, Clarewood Drive, Camberley, Surrey. *A. N. Baby,* Newbold Avenue, Chesterfield, Derby. *S. Barker,* Camden Park Road, Chislehurst, Kent. *N. Bascendale,* Freshfield Road, Formby, Nr. Liverpool. *D. T. Bath,* Duntish View, Pulham, Dorchester, Dorset. *M. Bowden,* Docking, Kings Lynn, Norfolk. *B. L. Broughton,* Reeves Way, Peterborough, Northants. *Simon Brown,* Gordonbrae, Berry Hill Park Estate, Mansfield, Notts. *Richard Cooper,* Holyoake Road, Mapperley, Nottingham. *R. H. Crane,* Brighton College, Brighton, 7, Sussex. *Mervyn Cripps,* Kingsbury Street, Marlborough, Wilts. *Eric Dash,* Shrewsbury Road, Forest Gate, London, E.7. *J. Davidson,* Branxton Farm, Dysart, Fife, Scotland. *A. Davis,* Budshead Road, Whitleigh, Plymouth, Devon. *Hugh Decker,* Burnt Oak, Broadway, Edgware, Middx. *Master A. Desrousseaux,* Dugdale Hill Lane, Potters Bar, Herts. *Steven Freedman,* Ashley Close, Hendon, N.W.4. *Arthur Gidlow,* Montrose, Gugers Road, Freshwater Bay, Isle of Wight. *Malcom Gilloch,* Normansire Drive, London, E.4. *Stephen Grundy,* Waltwaite, Chapel Style, Ambleside, Westmorland. *Keith Harrison,* Morar Road, Dukinfield, Cheshire. *Peter Norman Hough,* Glastone Street, Winsford, Cheshire. *J. Hughes,* Burlington Road, Midsomer Norton, Nr. Bath, Somerset. *Michael Jones,* Little Bookham Street, Gt. Bookham, Nr. Leatherhead, Surrey. *Timothy Kingdom,* Fern Drive, Taplow, Nr. Maidenhead, Berks. *M. Lishman,* Havelock Road, Windermere, Westmorland. *C. Malein,* Wood Lane, New End, Astwood Bank, Redditch, Worcs. *Richard John Mansell,* Amesbury, Wilts. *S. Meakin,* Whitehayes Road, Burton, Christchurch, Hants. *Andrew K. Miles,* Pearsall Road, Longwell Green, Bristol, Glos. *P. Mitchell,* The Ridgeway, Ruislip, Middx. *P. Nixon,* Quarrendon Road, Amersham, Bucks. *C. Pakes,* Douglas Road, Worsley, Lancs. *John Parsons,* Hall Lane, Upminster, Essex. *Paul Parry,* Pipers Lane, Hoole, Chester. *John Richards,* Glan-Yr-Afon Gardens, Sketty, Swansea, Glam. *M. Sibbit,* New Church Lane, Ulverston, Lancs. *D. Simpson,* Eastwood Avenue March, Cambs. *Gordon Simpson,* Croudhurst, Kent. *John Smith,* Peterhead, Aberdeenshire, Scotland. *Peter Sneller,* Woodstock Road, North St. Albans, Herts. *Roger Taylor,* Stanhope Road, Longwell Green, Nr. Bristol. *S. Thomas,* Leander Road, Thornton Heath, Surrey. *B. Turner,* Walton Crescent, Llandudno Junction, Caerns, N. Wales. *Francis Volans.* Barrow-on-Soar, Loughborough, Leicestershire.

The names of winners from Overseas will be printed in next month's issue.

OVERSEAS WINNERS COMPETITION F

Symul Pierre-Francois, rue Bonry, Rotheux-Rimiere, Province de Liege, Belgium. *M. Blitz,* Rusthoflaas, Rotterdam 11, Netherland. *John Hellwig,* Kim Street, Sarnia, Ontario, Canada. *M. K. Jackson,* Clair Logis, Noirmout, St. Brelade, Jersey, C.1. *Gino Serra,* Corso Regina, Maergherita 187, Torino, Italy.

Aviation feature

by John W. R. Taylor

WHEN the 1914-18 war ended, the Royal Air Force had 22,647 aeroplanes and more than 13,500 trained pilots. Flying was no longer a hazardous sport for supermen, as it had seemed to be in pre-war days, and many people expected a boom in civil aviation after the fighting had ended. They were soon disillusioned. A few airlines began flying between the major cities of Western Europe, using converted bombers; but most members of the public were either afraid to fly or could not afford to do so.

The same was true of private flying, until the *Daily Mail* newspaper decided to do something about it by organising a competition for light aeroplanes. The aim was to find a small, inexpensive and easy-to-fly machine that almost anyone could afford to own. A first prize of £1,000 was offered for the aircraft that flew furthest on one gallon of petrol. Other people added prizes for speed and altitude.

With their eyes on the main prize, Britain's designers concentrated on achieving a low fuel consumption, at the expense of almost everything else. To save weight, they scaled down their aircraft to the smallest possible size, used the lightest known methods of construction, and fitted the machines with converted motor-cycle engines. Undercarriages were often no more than a pair of tiny wheels, half-buried in the bottom of the fuselage to reduce drag in flight.

About 15 types were completed in time to take part in the competition, at Lympne Airport in Kent, on October 6-13, 1923. The Secretary of State for Air, Viscount Templewood, went to see them and described them later as "a curious collection of small single-seaters that were more like toys than dependable means of transport". This was fair comment; but the aircraft were impractical only because the organisers of the competition had put too much emphasis on low-cost flying, and not through any failure on the part of their designers.

Bicycle wheels

Gloster's Gannet biplane was one of the best-looking aeroplanes sent to Lympne. Unfortunately, it had an untried two-stroke engine which could not be persuaded to run for more than a few minutes at a time, so it had no chance to show its paces.

The Avro 558 biplane (Ray Malmstrom's model of which is described on pages 23-25) had better luck. Two prototypes were built, with different engines. The first, which carried the competition number 5 on its rudder, had a B & H two-cylinder Vee direct-drive motor-cycle engine and was flown by Bert Hinkler, one of the most famous pilots of the time. The second 558, registered G-EBHW and given the number 11, had a 500 c.c. Douglas horizontally-opposed two-cylinder engine, which drove the propeller through a chain reduction gear. Flown by H. A. Hamersley, it managed to complete four circuits of the 12½-mile course, without landing, on the first day of the contest and later won the second prize of £100 in the altitude contest by climbing to a height of 13,850 ft.

Some trouble was experienced when landing in long grass or on rough surfaces, because the two bicycle wheels that made up the undercarriage were half-inside the fuselage, bringing the lower wing close to the ground. After the competition, both 558's were given a taller undercarriage, with the wheels carried on struts under the fuselage. No. 5 was, at the same time, re-engined with a 698 c.c. Blackburne Tomtit.

In its new form, the second 558, G-EBHW, took part in the Royal Aero Club's Light Plane Demonstration at Hendon, on October 27, 1923. Flying low and precisely, despite a high wind, Hamersley finished third in the race; but it was clear that aircraft as small and low-powered as the 558 had no future for everyday flying and little more was heard of it. For the record, it spanned 30 ft., was 19 ft. 6 in. long and weighed only 294 lb.—less than one-quarter the weight of a Mini-Minor car.

The two aircraft that shared the £1,000 main prize at Lympne were monoplanes. One of them, the English Electric Wren, was even lighter than the Avro 558, with

Here's the little Avro 558 with its longer undercarriage

they flew 57 miles for 1s.

an empty weight of 232 lb. Its 398 c.c. ABC engine gave it a top speed of only 50 m.p.h., but used so little petrol that Flt. Lt. Walter Longton was able to fly 87½ miles on one gallon of petrol. As petrol cost 1s. 6½d. a gallon in those days, this meant that the Wren could fly 57 miles on a shillings-worth of fuel.

By a strange coincidence, the ANEC I, powered by a Blackburne Tomtit engine, covered exactly the same distance on a gallon of petrol. But its winnings were not limited to £500, as it also carried off the altitude prize of £200 by reaching a height of 14,400 ft., and came second in the speed contest, with a maximum of 74 m.p.h. The £500 first prize for speed went to another monoplane, the Parnall Pixie, which clocked 76·1 m.p.h. with a 736 c.c. Douglas engine.

Two English Electric Wrens took part in the 1923 Lympne Trials. They may not have been very practical as private aircraft, but they must have been well built as one was restored to an airworthy condition a few years ago and, as part of the Shuttleworth Collection of vintage aeroplanes, began flying again at air displays.

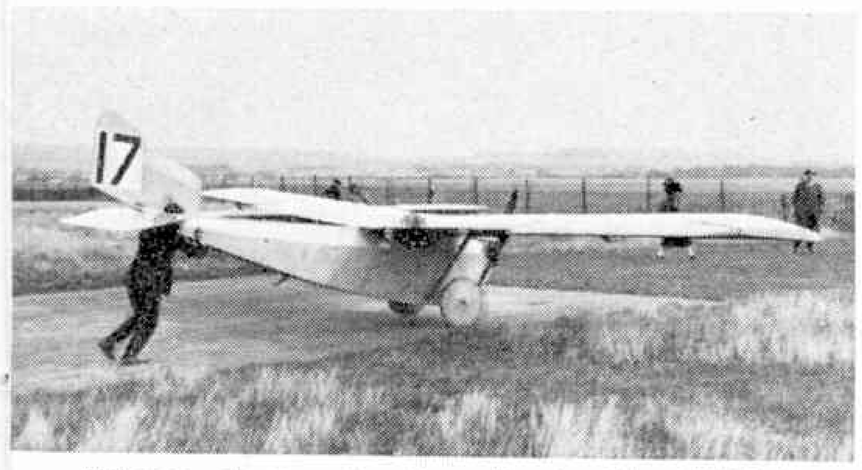
Present-day visitors to the Shuttleworth Collection, at Old Warden Aerodrome, Bedfordshire, can see another of the aeroplanes that flew at Lympne more than 40 years ago — the de Havilland Humming Bird G-EBHX. Although it did not win a prize, this little monoplane caused a sensation when test pilot Hubert Broad looped and rolled it. Aerobatics of this kind had never before been attempted in a light aircraft, and the Air Ministry was so impressed that it ordered eight Humming Birds for the R.A.F. They were used as communications aircraft, for cheap flying practice and for experiments in which they were carried and launched in flight by the British airship R-33.

The Humming Bird was, perhaps, the best of the 1923 Lympne light planes, but it was not a particularly good best. Captain (later Sir) Geoffrey de Havilland realised that private flying would never be safe and practical while people thought only in terms of the lowest-possible cost, at the expense of structural strength and performance. He persuaded Major Frank Halford to design a new 60 h.p. four-cylinder engine known as the Cirrus. Round this engine, he drew up a two-seat biplane which he named the Moth. The rest of the story is history. . . .

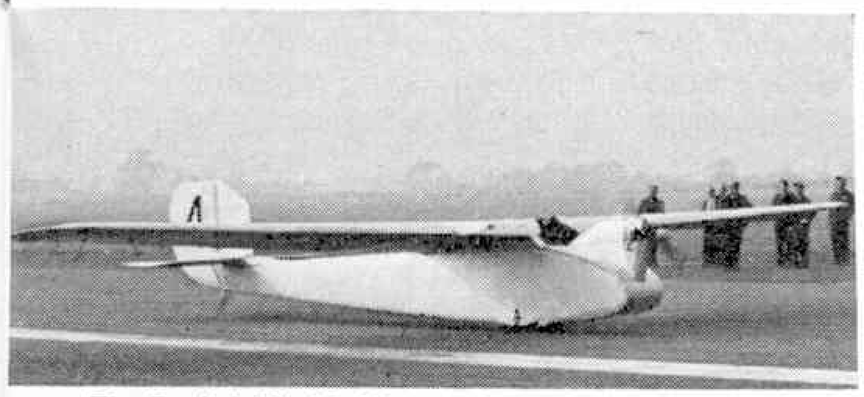
The Moth put the young de Havilland Aircraft Company on its feet and started the private and club flying movement throughout the world. Its descendants flew to Australia and across the Atlantic, and were used to train most of the pilots who won the Battle of Britain in 1940 and who carried out the great R.A.F. bomber offensive against Germany.

Perhaps the greatest achievement of those strange little, frail, underpowered light planes of 1923 is, therefore, that there might never have been a Moth if they had not proved to be so thoroughly useless !

Humming Bird EBHX as it was in the beginning with Douglas engine



Winner of several prizes—the toy-like ANEC I

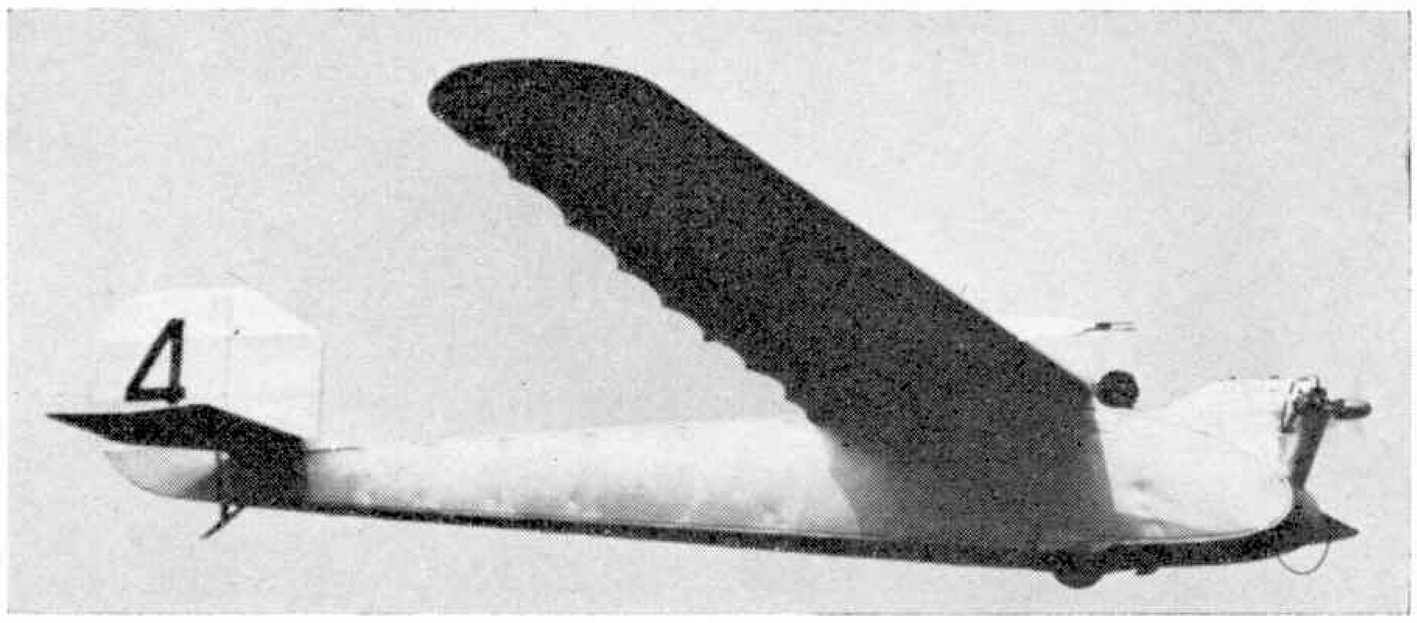


The English Electric Wren in her re-built post war guise

The de Havilland Humming Bird today, preserved by the Shuttleworth collection

Above: The partly submerged bicycle wheels of the dainty Avro 558 are clearly shown in this view. Here's an alternative marking scheme for your model too

Below: Buzzing overhead, the delicate Wren displays her single landing wheel. She was little more than a powered glider

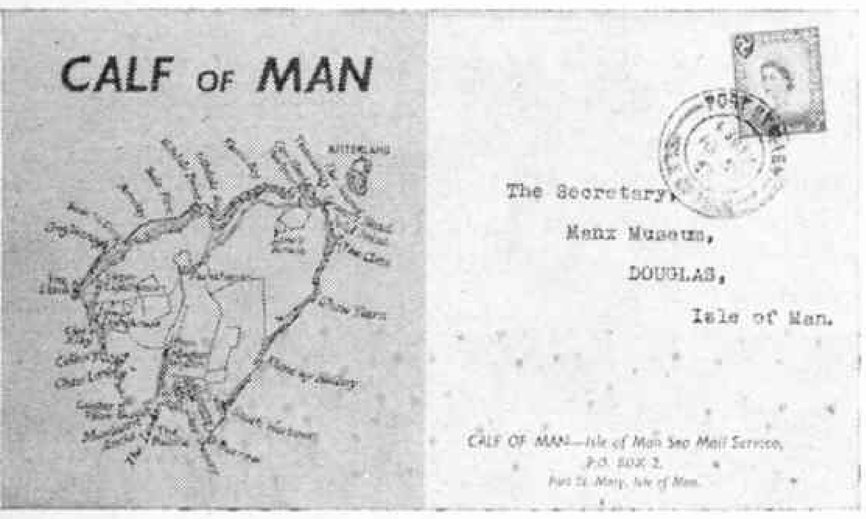


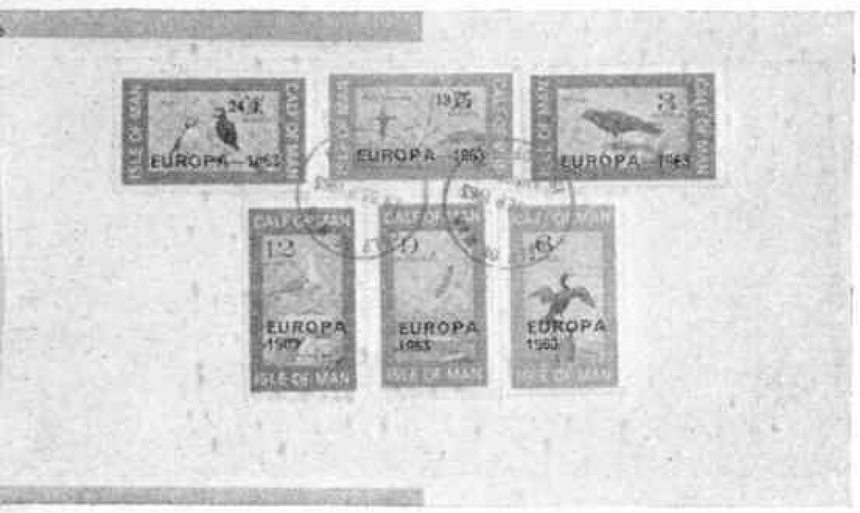
mailbag

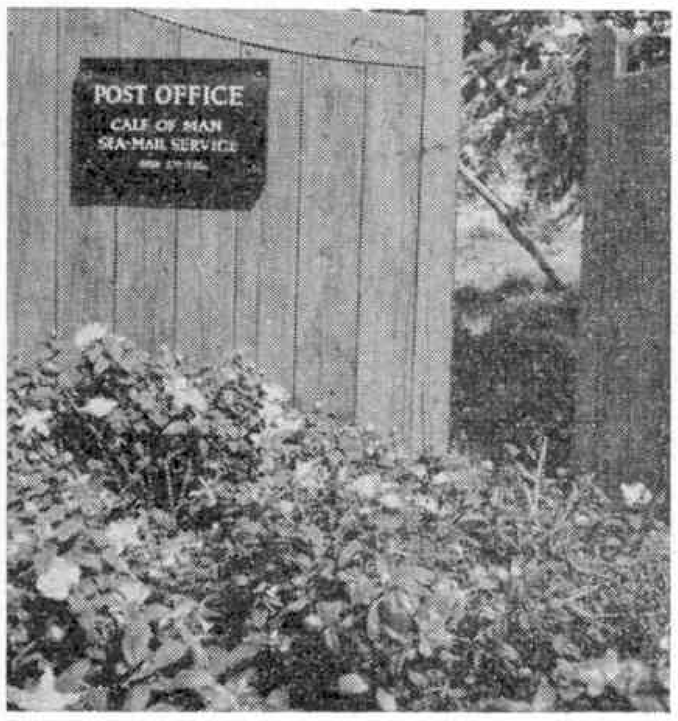
Letters and photographs on interesting topics are always welcomed by the Editor.

Calf of Man Stamps

The Calf of Man, an islet off the south-west coast of the Isle of Man, is owned by the Manx National Trust, who issue a special set of stamps illustrating birds. Stamps are sold to visitors between May and September by wardens engaged by the Trust as bird watchers. Picture post-cards (of the Calf) and ordinary postage stamps are also sold, both stamps being stuck on the card, which is placed in a box nearby. After collection the mail is taken over to the mainland and dispatched from Port St. Mary. The Post Office must be the smallest in the world, consisting only of one table which is a millstone in use when the Calf was farmed. Stamps and cards are sold from the table, and a brisk business is done during the holiday season. *F. J. Chapple, Port Erin, I.O.M.*





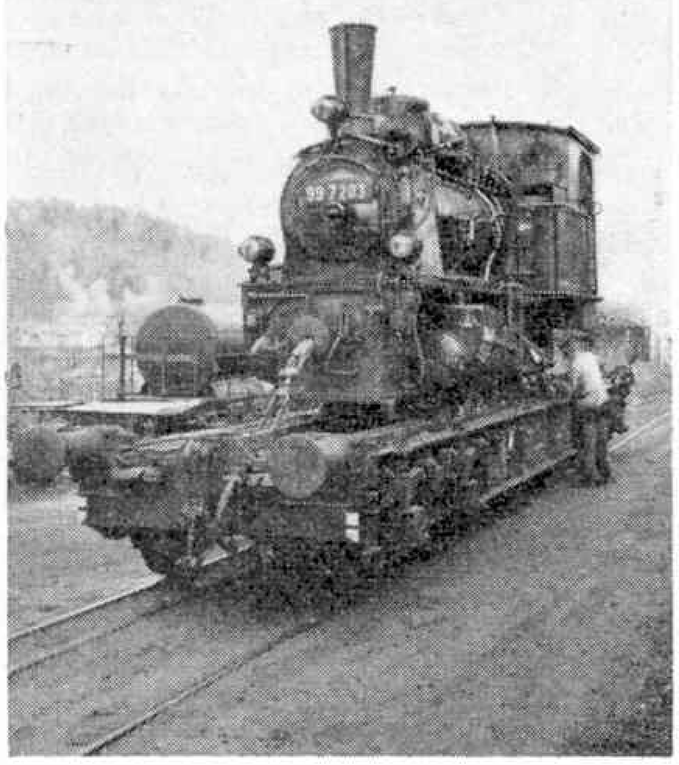


Loco travels pick-a-back

Recently, the narrow-gauge line between Mosbach and Mudau in Baden (West Germany) got two new diesel-locos and therefore this old fashioned steam locomotive was scrapped. She was known as '*Fiery Elijah*'!

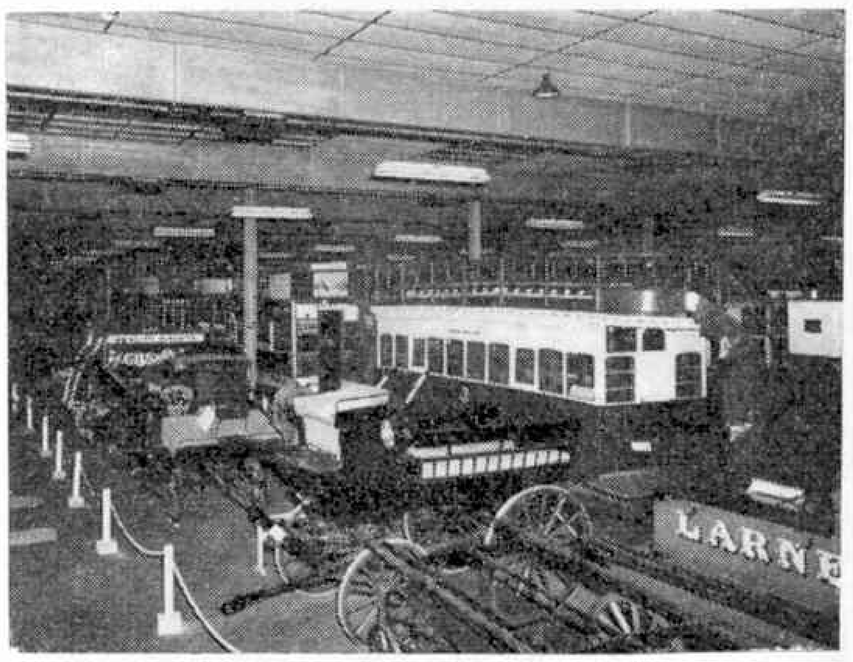
However this 'Old-Timer' for narrow-gauge soon found new employment and she is to be seen in the accompanying picture. This loco came as a 'Saving Angel' to the old narrow-gauge line between Busenbach and Langensteinbach, because there the old loco of this private railroad was no longer in use. So it was decided to bring this interesting old locomotive, with the aid of a special-car of the German Federal Railway, pick-a-back, to her new working place.

Perhaps it was the first time that a locomotive rode pick-a-back on another railroad-train. *Hans F. Kutschbach, Hannover, Germany.*



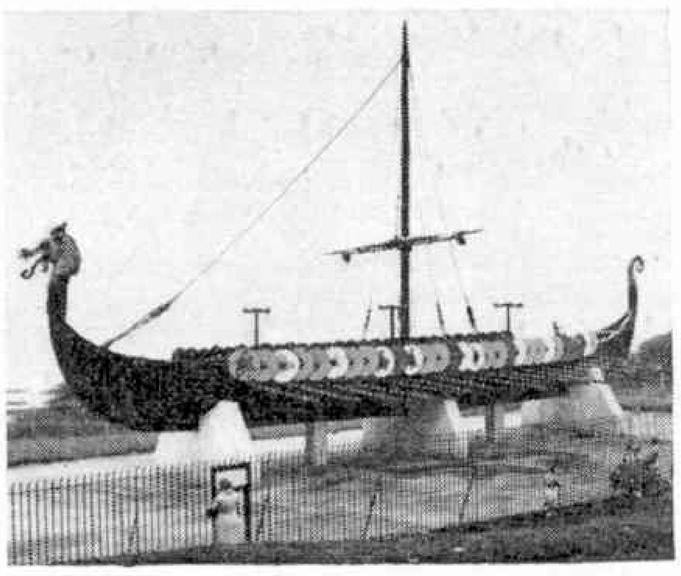
Belfast's Transport Museum

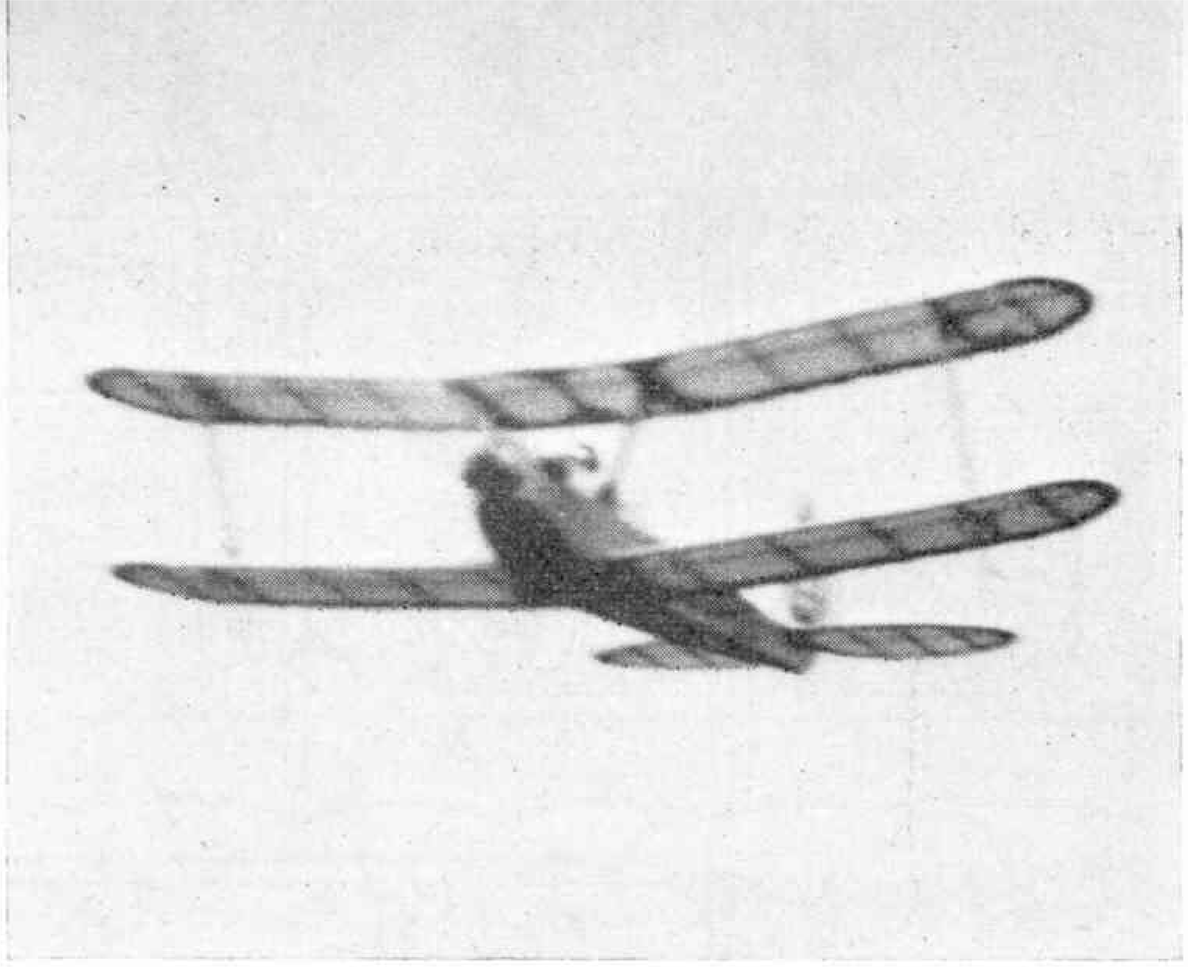
Near the embankment of the former Belfast & County Down Railway, at the corner of Tamar St., is Belfast's Transport Museum, with entrance in Witham St. As you pay your entrance fee you get a railway ticket endorsed 'B.C.T.M.R. Witham St. to Tamar St.' and on the other side it says 'Transport Museum—Souvenir of the Opening, Friday 15th June, 1962.' Mr. Robert Beggs, the curator and his hard-working staff have made this former weaving mill a really exciting place with several famous engines, a genuine railway platform, slot machines, working signal cabin, and staff in authentic uniforms. There are also veteran cars, old trams and vehicles of every type, not excluding sea and river craft. If you are in Northern Ireland, do pay a visit—you will be glad you went! *Leslie Hunt, Leigh-on-Sea Essex.*



Viking Ship in England

This wonderful replica of a Viking ship stands in an enclosure on the low cliffs at Pegwell Bay near Ramsgate in Kent. It actually crossed the North Sea from Denmark some years ago in 10 days to commemorate the landing of Horsa and Hengist 1,500 years ago. These brothers defeated the Britons and Hengist established a Kingdom in Kent, being regarded as the founder of the Anglo-Saxon rule in England. *Frank Rogers, Allestree, Derby.*





Shades of 1923! The Avro 558 flies again—in model form

After reading John Taylor's account of the Lympne Trials, you will be eager to build this exciting model of the

AVRO 558

An unusual biplane of yesteryear, modelled exclusively for Meccano Magazine

by Ray Malmström

OVER 40 years have passed since the full size AVRO 558 felt the rush and surge of wind under its wings. There is no doubt, however, about the fascination of building a flying scale model of such an unusual aeroplane. The original AVRO 558 caused quite a stir among aircraft enthusiasts way back in 1923, and you can be sure of attracting a lot of attention when you take your model AVRO out for an afternoon's flying in 1966.

The plans are full size, and if you follow the 'easi-build' sketches you will find construction quite straightforward, so we will not take up precious space by detailing building procedure in these notes. Accurate alignment of the centre-section struts is important, as is wing incidence and dihedral. Time and care taken in construction will result in a very flyable little model.

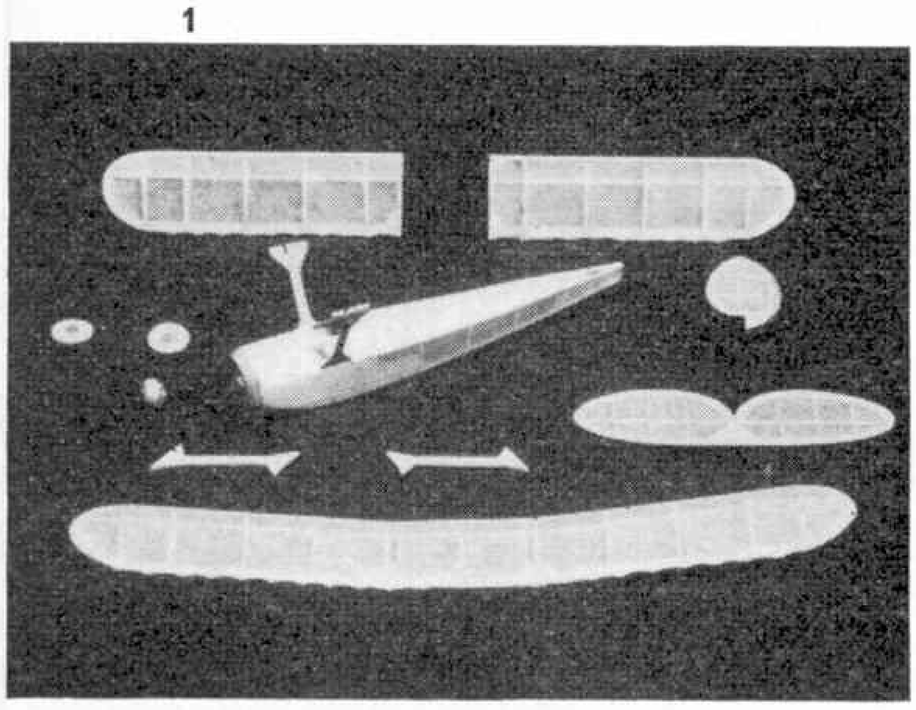
Flying Notes

You will need some weight in the nose to achieve correct balance. Recesses are provided in the nose for pieces of sheet lead, lead pellets, or folded cement tube. When you have carefully balanced your model, these recesses can be covered with $\frac{1}{32}$ in. sheet balsa, or tissue stuck on the front of the model. With the rubber motor installed, suspend the model from the balance point shown on the plan. Your AVRO 558 should hang level or slightly nose down. Avoid any tendency for the model to hang *tail* down.

Choose a calm day and some long grass for first glide and power tests. Check the balance, and freedom from warps of the wing, tailplane and fin. If there is a slight breeze launch your AVRO 558 from shoulder height directly into wind. Launch gently, with a follow-through movement of the arm, and with the nose of the model level or pointing *slightly* downwards. Never *throw* the model. It should glide down and land about 20 ft. ahead of you. If it turns sharply either to left or right, correct this by bending the trim tab on the fin slightly in the opposite direction to the turn. Obtain a straight glide and you are ready for your first power-on flight. Before winding, check that the propeller (incidentally the propeller is a 5 in. diameter Keil Kraft plastic one, obtainable from your aeromodelling shop price 11d.) is pointing downwards, and towards the right (model viewed from the rear). *These adjustments are most important.* Do not neglect to see you have built them in correctly as shown on the plan. Well lubricate the rubber motor (special rubber lubricant costs 6d. per tube) and then wind on 150-250 turns. Launch gently, as for glide tests. Model should climb away, cruise for a short distance, and then glide in to a landing. If your AVRO 558 turns violently to the left *increase* the propeller off-set angle. If it stalls, increase the degree the propeller shaft is pointing downwards. A gentle climbing turn to the left is fine. You can increase the turns with each successful flight up to a maximum of 580. These turns are best put on with a hook fixed in the chuck of a drill (gearing about $3\frac{1}{2}:1$). Pull the rubber motor well out, and stretch it as you wind on the turns. And now a small tip. Give an added 30-40 turns *by hand* before launching. These hand turns give just the necessary boost for a good climbing take-off.

I am sure you will get lots of fun from this little AVRO 558. Perhaps some keen aeromodeller will scale it up to say $22\frac{1}{2}$ to 30 in. span, when power could be a Cox T.D. 010 or 020 glo-motor. (*Full size plans are on the next two pages*)

1



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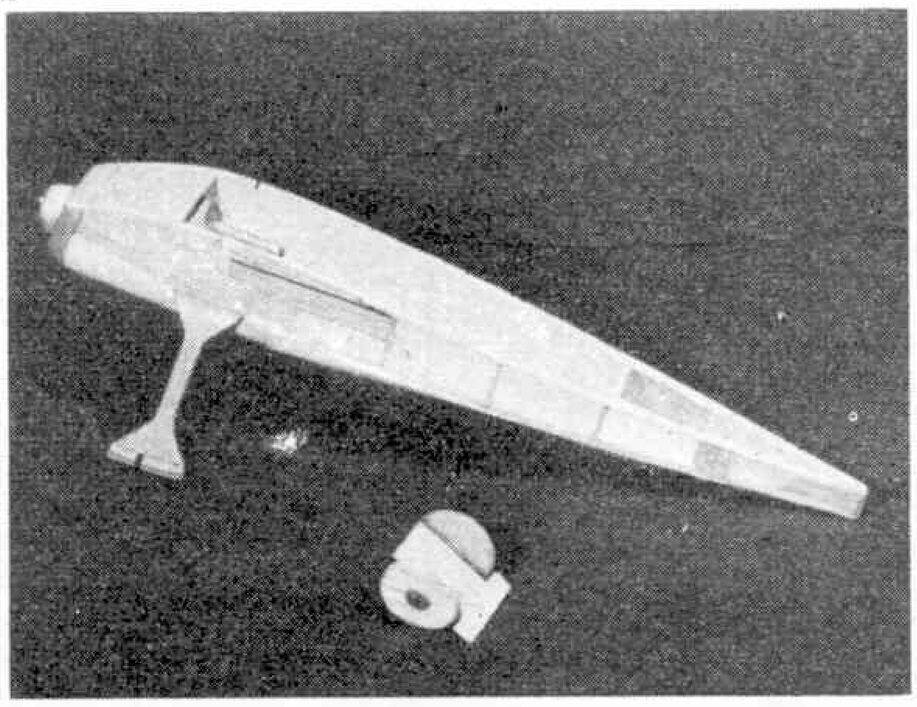

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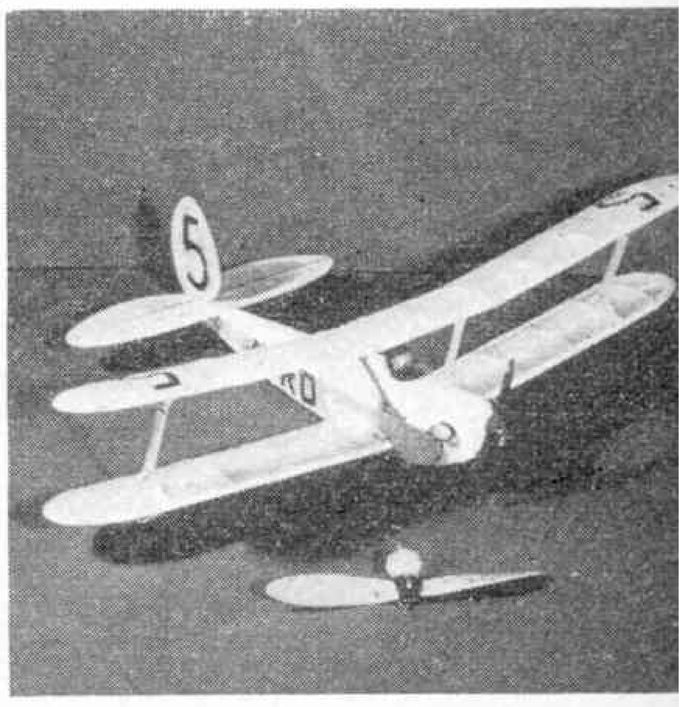


1 *Flying surfaces etc. ready for assembly to the fuselage structure.* **2** *The undercarriage unit ready for assembly to bottom of fuselage.* **3** *The Avro 558 with scale display propeller, flying prop. in foreground*

5

Tips 1/16 sht

Black

Interplane strut

3/32 sht

LE 3/32 sq

Pilot carved from soft block

Gussets 1/16 sht

1/16 sht

All wing ribs except those marked are 1/16 sht

N.B. W fin, an plane, slightl enlarg scale impro perf

F1 1/4 sht

Cut out

Weight recess

In ball point pen

Centre section struts 1/32 ply + 1/16 sht

Give sheet parts two coats clear dope

In felt marker

Lower win Make right left hand s

NOTE Off set

Nose button

Cut out

F2 3/32 sht

1/16

BALANCE POINT

1/32 ply

Wheels 1/8 sht

Thin cellophane

Pilot (optional)

Rubber motor

1/32 ply discs

F1 F2 Cowling F3 F4

Drive shaft 20 swg

Turtle back Black

Fuselage frame 1/16 sq

Nose weight here

Cross pieces

AVRO

1/8" dia. dowel

20 swg brass bush

1/4 sht Nose button

5" dia. K.K. plastic prop.

Fill in with 1/4 sht

Upper mainspar

Interplane strut

Round-off edges of all struts

L.E.

Centre line

Interplane strut 3/32 sht 2 rqd

Turtle back and cowling from notepaper

Top

1/16 sht

Centre line

Thread

POWER: 1 loop 12" long 3/16" rubber strip. Max turns: 580 (Lubricate well)

Tape

20 swg wire

Cowling

Cylinders from 1/4 sht

Cut out

Cut out

Lower mainspar

Scale propeller 1/4 sht (displ

wedges

F3 F4

AVRO. 558. 1923.

N.B. Wing chord, fin, and tail plane, have been slightly enlarged from scale to improve flight performance.

Mainspar 1/16 sht

To fuselage

Centre section template 1/8sht

T E/ 1/16 sht

3 32 sht

Lower wing
Make right and left hand sides

Cover all framework with white lightweight tissue Water shrink. Give one coat clear dope

Trim tab
(Thin notepaper)

Fin 1/16sht

1/16 sq

1/8" dia. dowel

1/16 sht

Bind

20 swg wire

Leave open under fuselage

Dihedral 3/4 in (upper and lower wings)

Scale propeller assembly (optional)

back and n notepaper

Pin

X

Y

1/8 sht

Y
1/4 sht

sht (display only)

1/16 sht

1/16 sq

1/16 sht

RM.1965.

Trim tab

Wing ribs

Front fuselage side 1/16sht
2.rqd

Build two fuselage sides

Turtle back from thin notepaper

Cut centre section struts

Bind skid tape

F3

F2

F1

Undercarriage assembly

axle

slots for mainspar

dowel

Noseblock

under fuselage sheeting and weight recess

fuselage top

Centre section strut assembly

Tailplane and fin assembly

Position of lower wing

Use of centre section template

Struts MUST be accurately aligned

Model MUST hang level when suspended from balance point

Wedges (cement firmly)

thread

Add windscreen

pin

Ribs slot into main spar

Add interplane struts

Nose button detail

hook

Assemble lower wings FIRST

Note centre sect. strut pieces

Cut off

thread

1/32 ply

20 swg brass bush washers

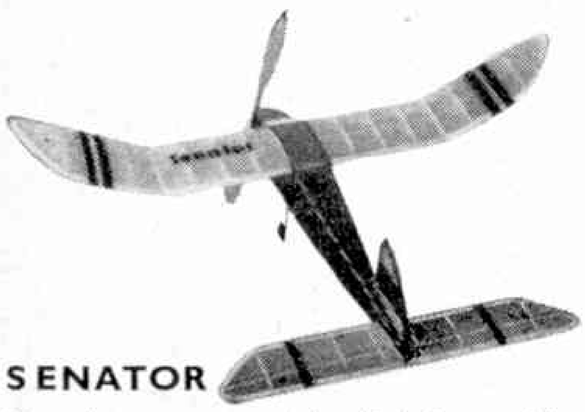
20 swg drive shaft

Build upper and lower wing panels as shown above

For the keen young craftsman . . .

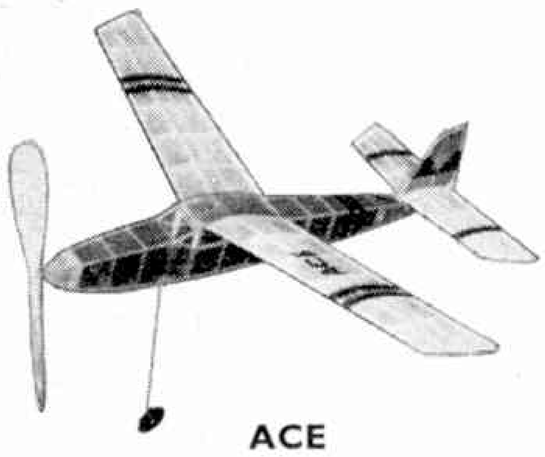
KEILKRAFT RUBBER DRIVEN MODELS

FOR INEXPENSIVE MODEL FLYING



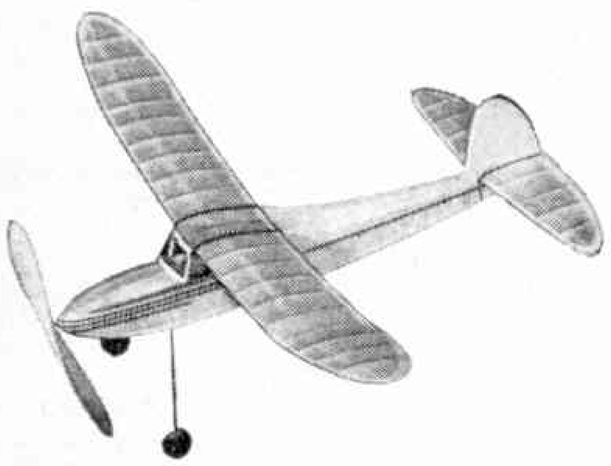
SENATOR

Novel contest model which is capable of a fine performance. Features a single leg undercarriage. Wingspan 32 in. **9/6**



ACE

Sleek cabin model. Construction is very simple, and the number of cut-out sheet parts have been kept to a minimum. Wingspan 30 in. **8/3**



COMPETITOR

The pleasing lines of this model have made it one of the most popular in the K-K range. Performance is outstanding. Wingspan 32 in. **12/11**

GEMINI

Beginners duration model with fuselage parts, tailplane and fins, in pre-cut pre-decorated sheet balsa. Wingspan 22 in. **10/-**

KEILKRAFT

THERE ARE OVER 100 MODELS IN THE KEILKRAFT RANGE

See them at your local model shop

The Greatest Name in Model Kits

STAMPS GALORE!

The Crown Agents Stamp Bureau

invite you to visit their STAND No. 50 at the DAILY MAIL SCHOOL BOYS and GIRLS EXHIBITION at OLYMPIA, December 27 — January 8

On this stand you can see exciting stamps of many countries. Also for your interest we have the **Original Rowland Hill printing press,** restored especially for this exhibition, this is the same press on which the famous **'Penny Black'** stamp was printed. There's something else too! We have a **jungle** there as well—yes a jungle complete with sound effects. It's well worth a visit.

Penny Black

STAMPS

by F. E. Metcalfe

BIRDS

THERE are countless thematic collectors, and their ranks are increasing all the time. Of course postal administrations know about this, and also realize that their profits will swell quickly, if they can issue stamps, with designs which appeal. The point is that apparently, at the moment, exotic birds seem tops, so country after country is providing a bird issue, and it must be admitted that some of these stamps are really attractive. In the Commonwealth we have had 'bird' sets quite recently from Malaysia, Gambia (these latter were overprinted to mark Self Government, and it is a very good set), Uganda, etc.

This latter issue is proving very popular, though frankly I do not recommend Uganda stamps as an investment. However a short set, up to 1s., will hurt nobody's pocket, and you will be able to make up a nice page in your album. Of course if you feel like going the whole hog, and taking all values to the top (£1) then you really will have something to crow about, for some really wonderful tropical birds have been illustrated. Investment, or no investment, I am tempted, for I really do like birds.

FISHES

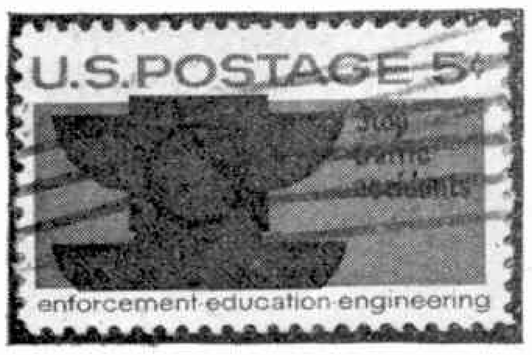
And what about fishes? These also are tremendously popular with that big band of thematic collectors, and so we are getting lots of 'fishy stamps', and whilst it is in the foreign field that the biggest catches are to be obtained, the Commonwealth P.O.'s are not slow in casting their nets for collectors' contributions to their profits. And there are some weird and wonderful fishes depicted on stamps. A collector kindly showed me his 'fish' collection recently, and it really was an eye-opener. With scores of stamps mounted, he really had a wonderful show, which interested the non-collectors just as much as we addicts. And if you are tired of birds (perish the thought) what about stamps similar to the illustration?

WATERMARKS

With the growing interest in our own G.B. stamps, particularly the modern ones (although there are grumblings about the designs of the latter, they are incomparably more attractive than British stamps of the earlier period) it is not surprising that occasionally would be philatelists, raise queries regarding watermarks (of which there are three of the QE II period), not just about their makeup, but also regarding their positions on stamps. For instance I received a letter quite recently from a reader who stated that he had purchased a 2s. stamp booklet, and the crowns of the watermark were sideways. He said that he had heard of inverted watermarks, but had he found something special? Within a few days, I received another query more or less on the same lines. And then there was a reader who wanted to know about inverted watermarks, so I think I had better touch on the subject. First of all watermarks inverted or sideways, are quite normal on stamps up to the 4d. value. They come from either stamp rolls, or stamp booklets. And whilst they were normal enough during their currency (as stated there have been three watermarks on QE II stamps, the current watermark shows crowns only) some of the stamps with inverted watermarks, are rather scarce. A full list of all these will be found in the new Commonwealth QE II Catalogue. It is not always easy to see the watermark, but it can be spotted better by looking at the stamps from the back.

TRAFFIC SAFETY

All of us deplore road accidents, and anything which can be done to remedy this dread situation applies to all of us. Can stamps help? The U.S.A. apparently think that the publicity which an issue can provide, may help a bit, so last September 22nd a single stamp was issued, titled 'Stop Traffic Accidents'. With collectors at



any rate, such an issue, might have had some effect and if even only a single life was saved thereby, the issue was not in vain. Up to the present our own Post Office has only issued stamps to mark events. Maybe they will take the tip, from their American counterparts. There are lots of worthy objects entitled to a stamp, besides that tower off Tottenham Court Rd.

EVEREST CLIMB

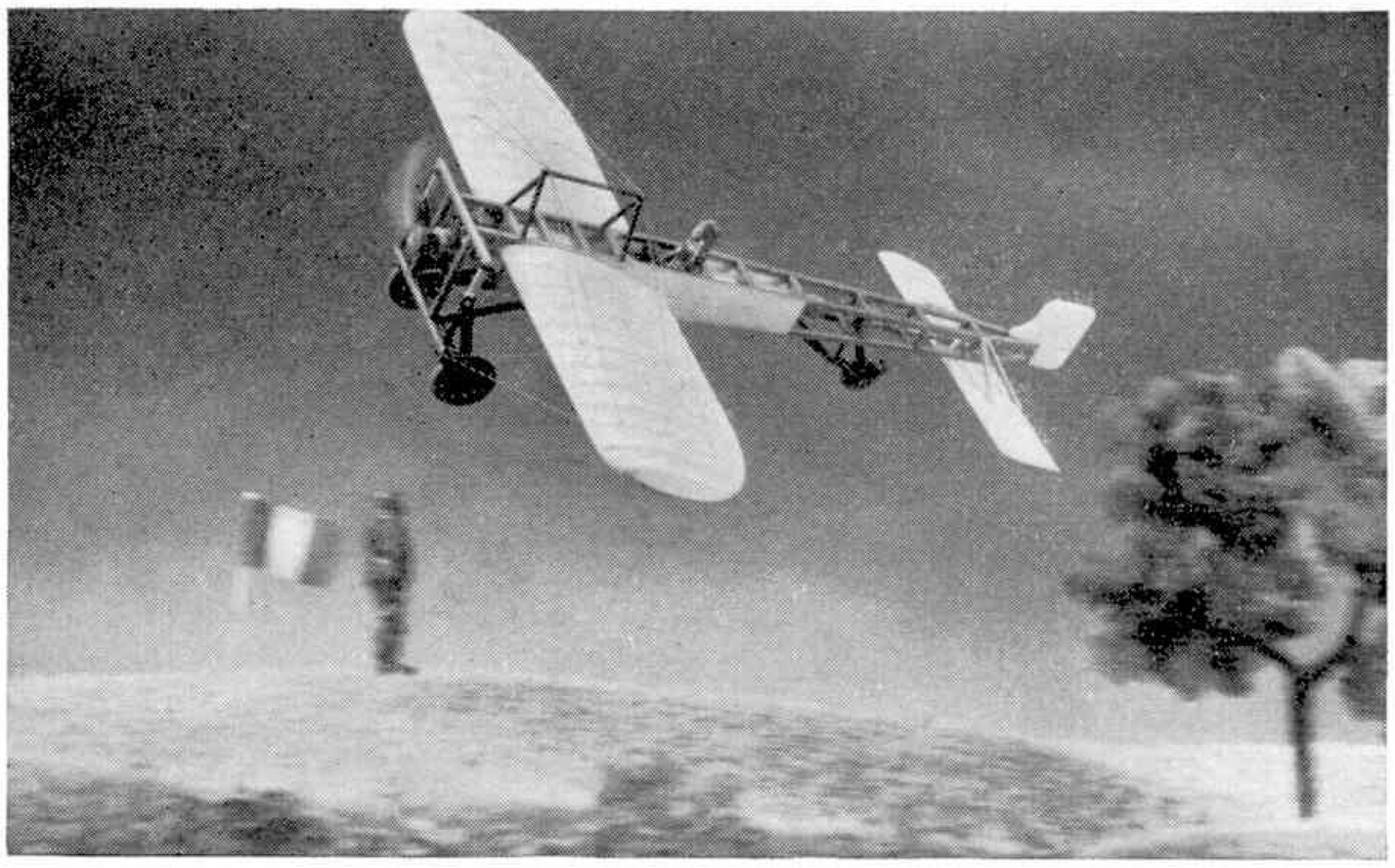
I just cannot resist referring to the Indian stamp issued a month or two ago, to commemorate their own Everest Expedition. It is quite a sign of their growing power, that it's not the foreigners who are tackling and conquering the world's highest mountain, but themselves. Good for India, and their stamp is a nice gesture marking what was a great feat.

TIP OF THE MONTH

I am not going to tip stamps this month, but refer to those little bits of gummed paper, you use for mounting your stamps—stamp mounts. I see lots of collections, and am surprised how penny wise many collectors are. They use inferior mounts, often mere bits of stamp edging, and then wonder why no dealer wants to buy their collections. Buy good mounts (folded if you are not very expert in folding a mount yourself) and use the minimum of moisture when attaching to your stamps. If you take that care, then you will find, if and when you come to sell, that the dealer will be much more inclined to give your collection consideration. A small point perhaps, but a very important one.

Antique Frenchman

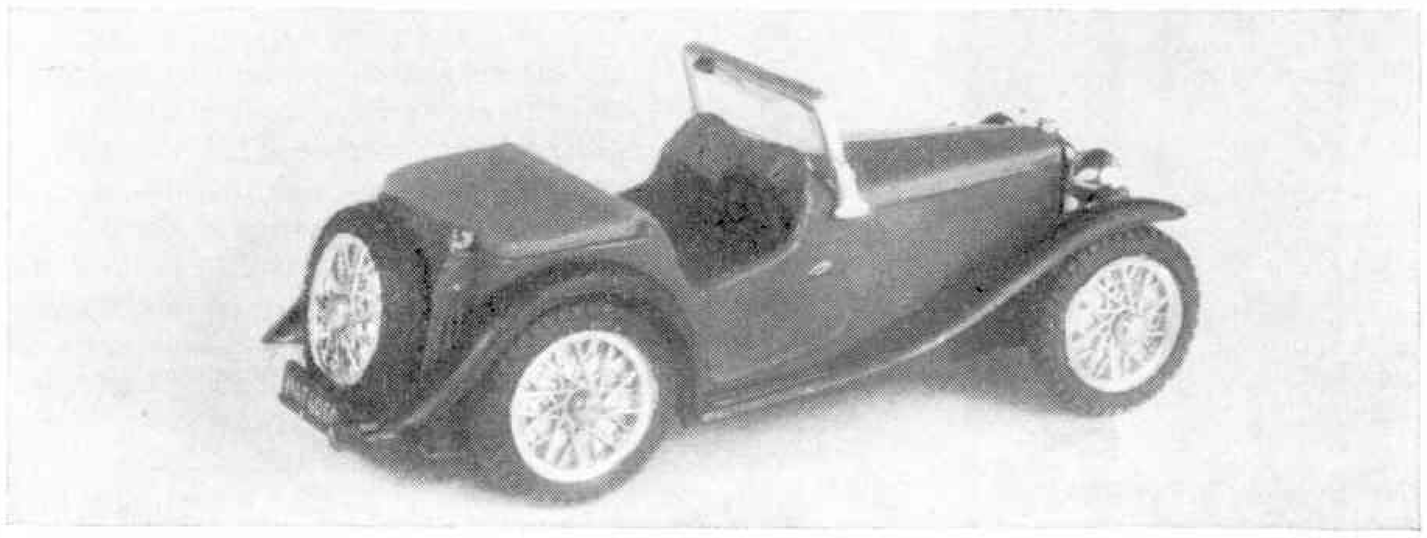
Latest addition to the Frog 'Trailblazer' series is this fine little Bleriot XI. It is, of course, a model of the first plane to fly the English Channel. The kit includes a very fine standing figure, a Tricolour and flagpole, and a 'patch of grass' on which to stand the completed model. In our picture, the pilot brings his plane down low to buzz the flag which is here being used as a race marker! Everyone who has seen that fine film 'Those Magnificent Men in their Flying Machines' will want to build this model—but be warned—you need lots of patience and a pair of tweezers! The results are, however, most rewarding. Price: 2s. 6d.



have you seen?

Not-so-antique Englishman

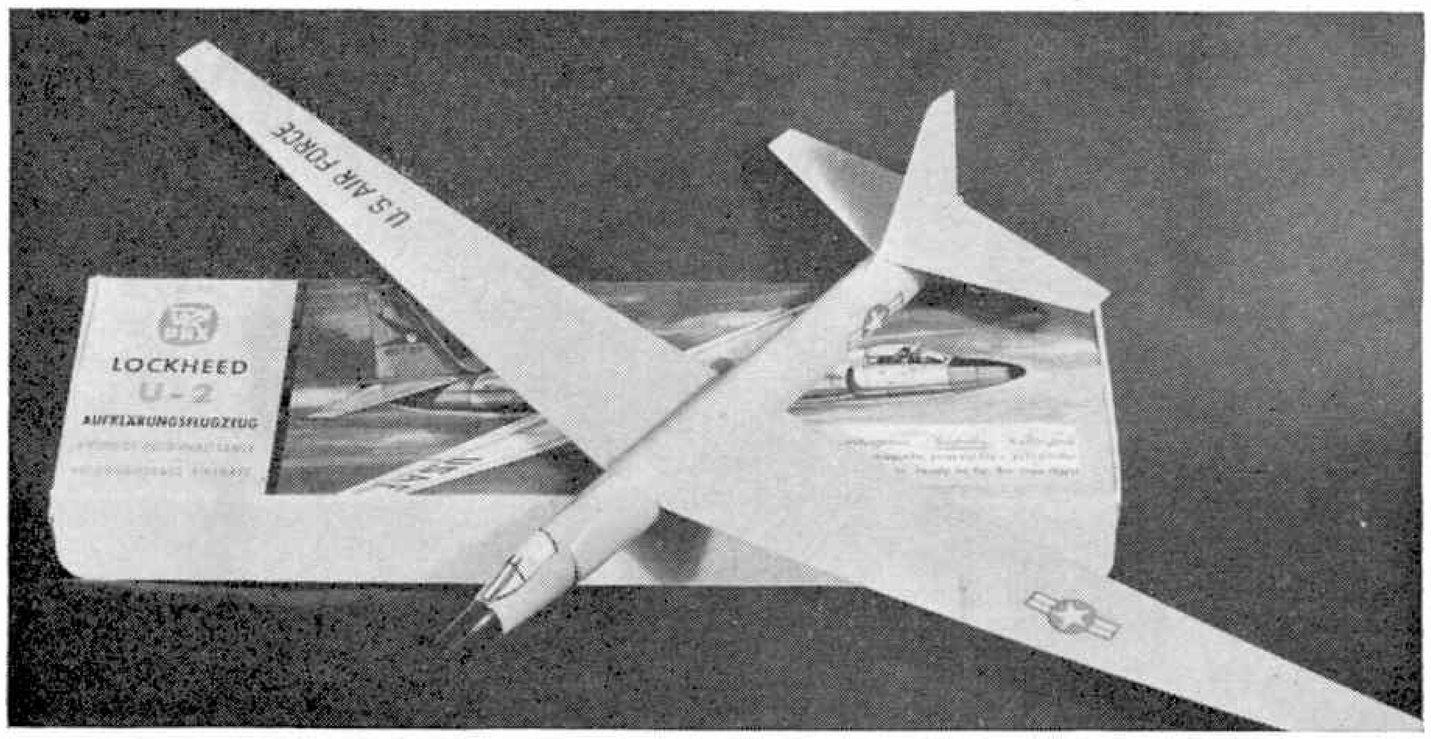
1935 to be exact. That's the date of the nippy little MG. P. B. Midget chosen as the prototype for the latest Spot One 1/42nd scale model. This is a real beauty, complete with plated spoked wheels, 'glass' in the bulbous headlamps and it even has minute corrugations on the steering wheel rim! We painted a narrow silver frame round the windscreen of our model and also painted the windscreen wiper motor black. It is easy to do and just adds that little finishing touch. Price: 5s. 11d.



High Flying Spy

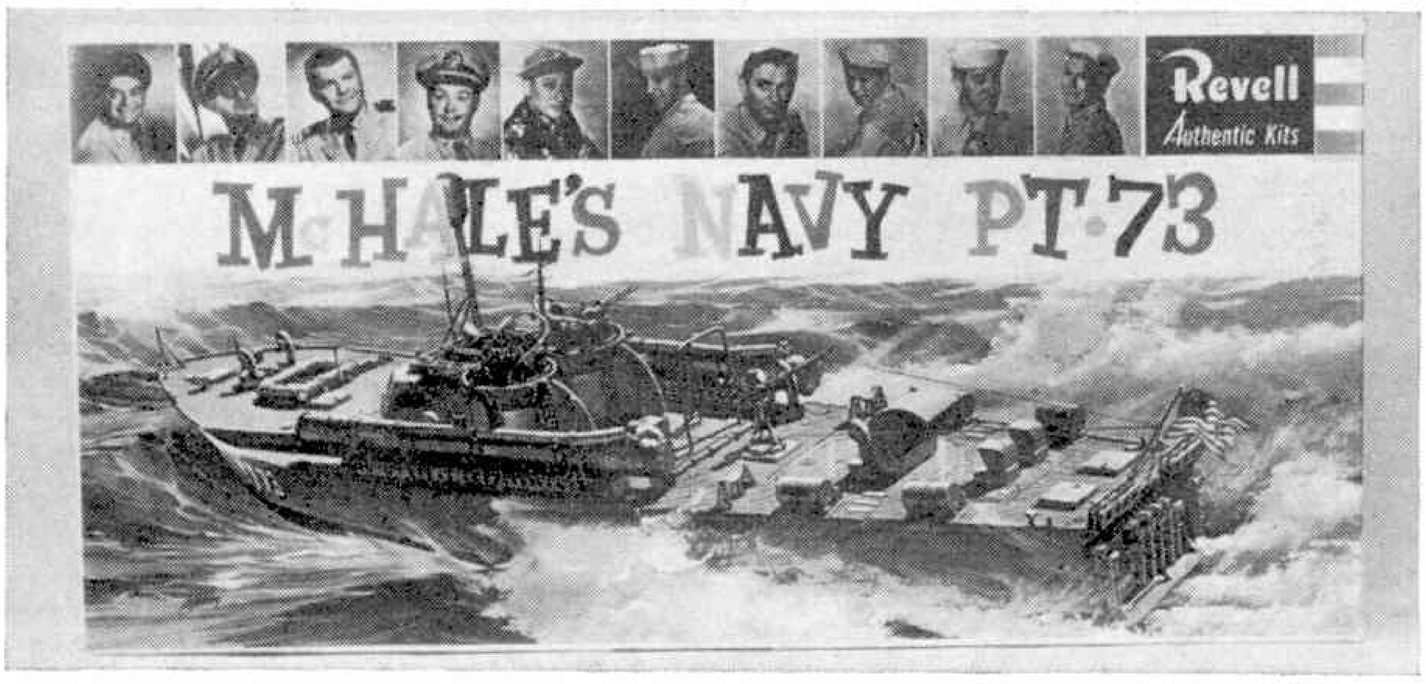
Finished moulded in self-colour (grey) plastic and ready-to-fly, this is an accurate flying scale model of the famous (or notorious!) American high altitude reconnaissance jet aircraft with a performance to match its realistic appearance. Launched by a rubber catapult (supplied with the model), this U-2 flies at speeds up to 60 m.p.h., or more, climbs to an almost unbelievable height and is readily capable of flights of 20 to 40 seconds duration. The nose section is moulded in soft rubber—a safety feature welcomed by anyone standing in the way of a low level beat-up!

Definitely a real flying model—not a toy—and its price is 8s. 11d., from model shops. Distributors are Ripmax Models & Accessories.



Crazy American

Fortunately for the U.S. Navy, McHales PT 73 is purely fictitious. This imaginary character appears on the television screen with regularity, placing himself in the most unlikely situations. Revell have now produced a plastic construction kit of the vessel used in this series. It is a PT boat fitted with four 50-calibre machine guns, a 20 mm, anti-aircraft gun, four depth charges and torpedo tubes. This detailed kit costs 10s. 6d., complete with stand. It is interesting to note the similarity of hull design to our own Project 66. Give you ideas?



Shoot the reviewer

Who, in this page last month mis-titled the magnificent new SUPERQUICK Railway Terminus kit! Readers will be pleased to know that next month's issue will contain a picture-feature on building these superb scale models.

1 Railway Carriages in the British Isles

Published by George Allen & Unwin Ltd, Ruskin House, Museum Street, London W.C.1.
Price 45s.
Size 9½ in. by 6½ in. 279 p.p. 50 p.p. half tone illustrations. 3 colour plates. 49 line drawings.

Although the locomotive, its history, development, and performance, have been the subject of hundreds, if not thousands of books and other publications, the railway carriage has never received the attention that it deserves. The only book, in point of fact, that was devoted entirely to this subject, was written by the same author in 1949, and was a reprint of a series of articles in 'Modern Railways'. The present book is a considerably enlarged edition, and it tells of the history and development of the carriage from its very inception as a blatant copy of the stage coach, to the time when it became 'civilised', with the characteristics we know today. The early history of the carriage is of especial interest because of the spartan comfort allowed to travellers, especially the unfortunate third class traveller, who was often expected to stand in little better than open wagons with no protection from the weather. This type of carriage subsequently became known as the 'Stanhope', and it was not until many years later that better accommodation was provided. The design and size of coaches undoubtedly influenced locomotive development from the days of the 'Liverpool and Manchester' and also reflected the changing patterns of social life. Written in his usual informative style, the author has made every effort in this most fascinating book, to include every conceivable fact, many of which were hitherto unknown and certainly unpublished. This is without a doubt the most comprehensive book of its kind, and will be heartily welcomed by everyone with a serious interest in railways requiring a reliable reference book, and hours of entertaining reading

2 Locospotters' Annual

Published by Ian Allen Ltd, Terminal House, Shepperton, Middlesex.
Price 8s. 6d.
Size 9¼ in. by 7¼ in. 64 p.p. 7 colour plates.

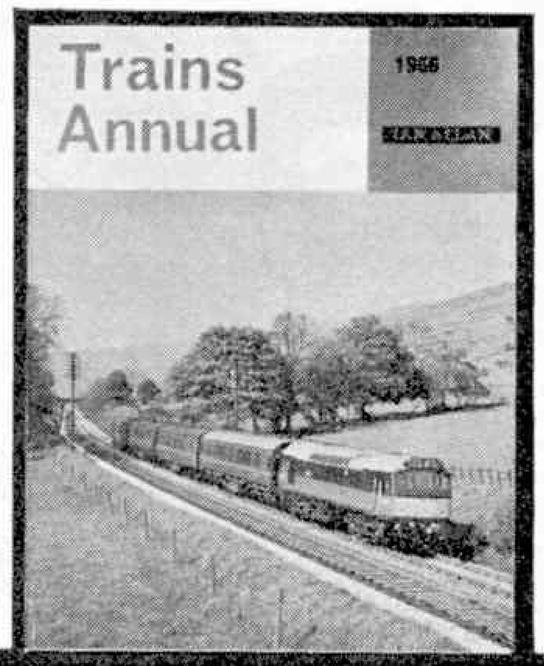
Edited by G. M. Kitchenside, who also writes a chapter on the Isle of Wight steam locomotives, the book will appeal to the younger enthusiast, who should find much of interest in its pages. The book includes chapters on both modern and oldtime aspects of B.R.—from 'Diesel variety on the Western' and, 100 m.p.h. on B.R.', to 'Steam in the North of England', and a fascinating article on 'Flying suburbans Past and Present'. Highly illustrated with half tone illustrations, seven colour plates, identical to those published in 'Trains Annual' are included. As with that publication two are lacking in quality, otherwise the book is very good value.

3 Trains Annual

Published by Ian Allan Limited, Terminal House, Shepperton, Middlesex.
Price 12s. 6d.
Size 7¼ in. by 9½ in. 96 p.p. 7 colour plates.

Of the annuals produced by Ian Allen, 'Trains Annual' is undoubtedly one of those that will appeal to enthusiasts with a non-technical interest in railways, and the ten chapters, each dealing with a different subject, is written by a variety of authors in an entertaining and instructive style. M. C. Reed describes the Settle and Carlisle main line, Richard Parkes tells of the hazards of shunting, Derek Cross recounts the story of the 'Duchess of Sutherland', now in service in one of Billy Butlins holiday camps, and R. C. Riley describes the 'Broccolo' traffic from Cornwall. Other chapters on Continental railways are also featured, and the book makes good reading. The only criticism that I have is that two of the colour plates leave a little to be desired. The many other half tone illustrations are however excellent.

Some Railway books for your library



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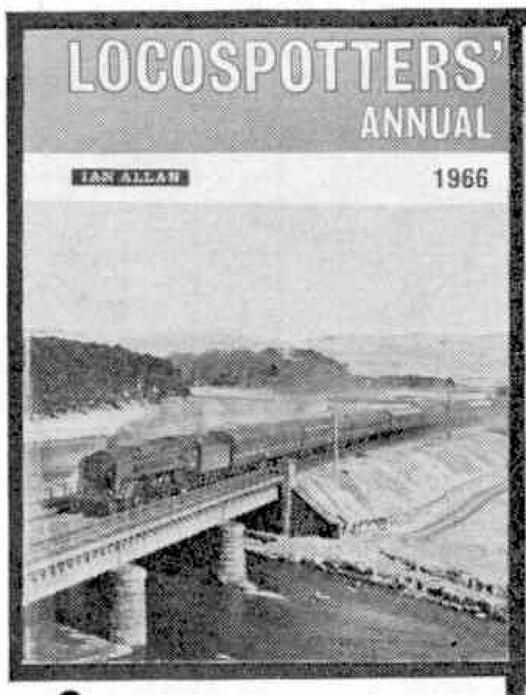

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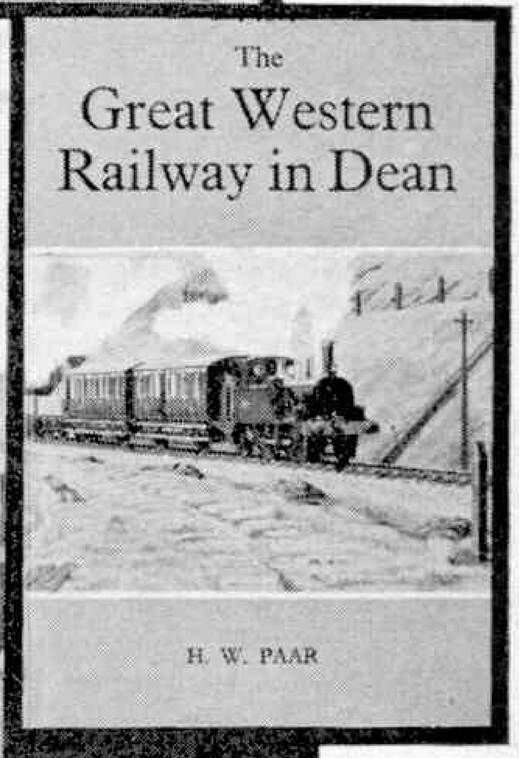
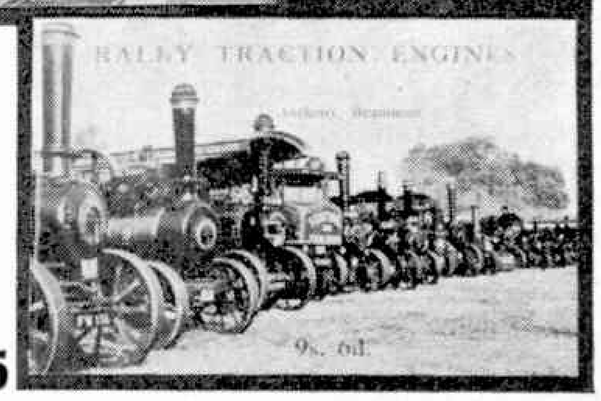


4 The Great Western Railway in Dean

Published by David & Charles (Publishers) Ltd, 39 Strand, Dawlish, Devon, and distributed by Macdonald & Company (Publishers) Ltd, Gulf House, 2 Portman Street, London W.1.
Size 8¾ in. by 5½ in. 168 p.p., one colour plate, sixteen p.p. half tone illustrations, 17 line drawings and a fold out map.
Price 35s.

Now a National Park, the Forest of Dean has long been associated with the very beginnings of the iron and steel industry and consequently the industrial revolution in England. The hitherto poorly documentated Forest of Dean railways have a history as fascinating as many of the more important lines, and this the second book on the subject by the same author describes the course of events that led to the construction of the Forest railways, and more specifically those that ultimately became part of the Great Western Railway System. Although most of the engineers concerned with the early Forest tram roads and railways are little known, the railway giants of that time—Brunel, Gooch, Rennie, and Stephenson, feature in the story of the Forest railways, both broad and narrow gauge as well as other minor railways. As with many other railways built in the first quarter of the nineteenth century, Mr. Teague's railway, the first in the Forest, met with terrific opposition, and the promoters were regarded with suspicion by the courts and local inhabitants. This was in some measure justified, for corruption was at that time rampant in railway projects, and an Act of Parliament safeguarding the timber, the miners' rights and the inhabitants of the Forest, was eventually passed. Although quite insignificant as a railway, it symbolised the fears that the local inhabitants had of the railway promoters. The book describes many other aspects of the Forest railways and it can be recommended to both the railway historian and the railway enthusiast. A worthy successor to the 'Severn and Wye Railway', part one of the history of the Forest of Dean Railways.



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5 Rally Traction Engines

A book of equal interest to railway enthusiasts.

Published by the Oakwood Press, Tanbridge Lane, Lingfield, Surrey.
Size 8 in. by 5¼ in. 54 p.p.
Price 9s. 6d.

Old machinery, especially the steam engine, has always had an attraction for a great many people, even in this age of technological development. Enthusiasm for old steam road and agricultural engines has reached unprecedented heights—indeed at one rally 200,000 people attended. Although the number of revenue earning traction engines is dwindling, a large number have been lovingly restored privately, with great skill, and at considerable expense, to working order for showing at the many rallies held all over the country. This handbook consists of fifty photographs, all of outstanding quality which, with the exception of one or two, have not been published before. Most types of engine are illustrated—tractors, rollers, showmans' engines, road locomotives, ploughing engines, and portable engines. The booklet is invaluable as a pictorial reference to both expert and those only mildly interested; they will find the book a fascinating study.

Puzzle Page

Turn to page 39 for answers to the puzzles on this page

TRICKY TEASERS

A. Below is a list of well-known birds, but all the consonants in their names are missing. Put a letter in place of each dot and try to complete the names.

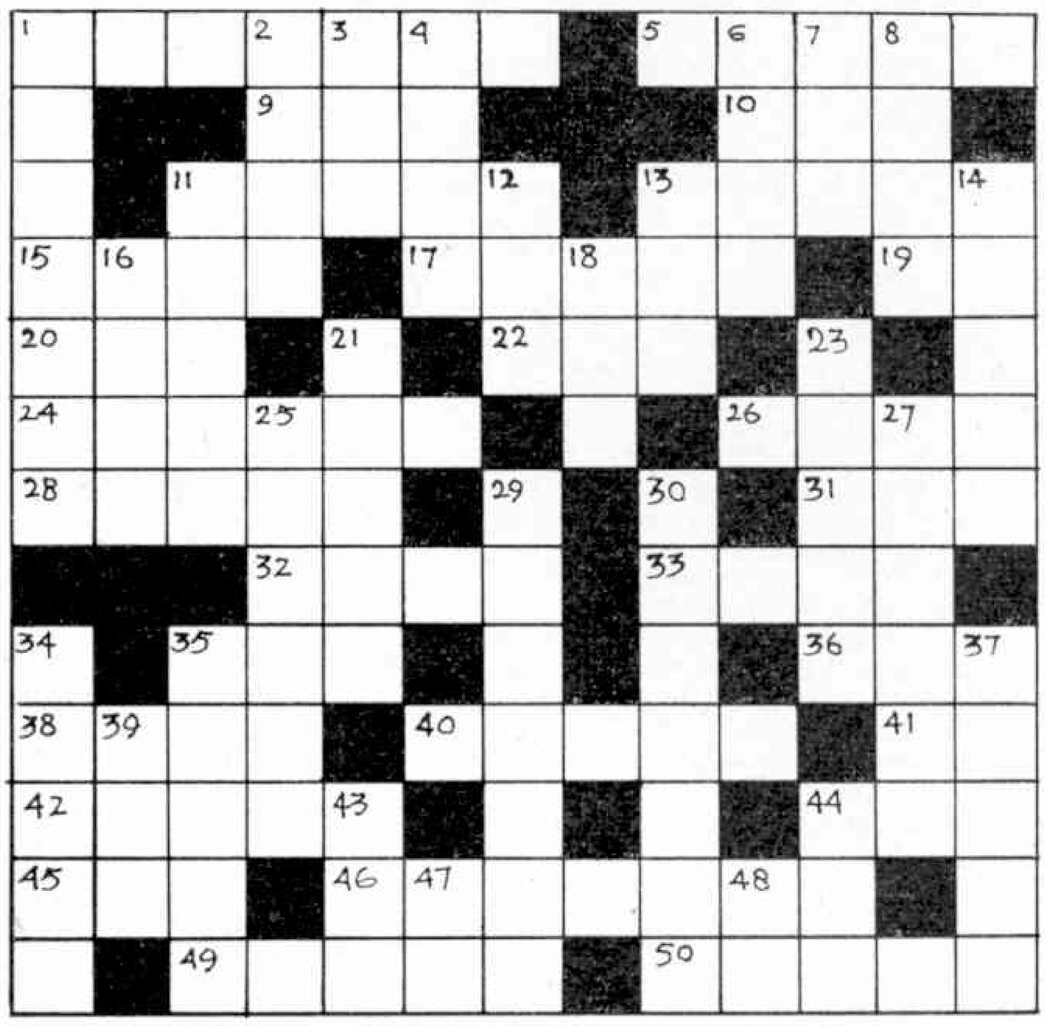
1. EA . . E
2. . O . I .
3. . OO . E
4. . . EA . A . .
5. . I . . . I . . A . E
6. . . . U . .
7. O . .
8. . . A . . I . .
9. . . OU . E
10. . A . .

B. Now for a housing problem! In one New York skyscraper two-thirds of the number of storeys equal half the number of storeys in another skyscraper opposite, which has 24 more storeys than the first one. Can you say how many storeys there are in each skyscraper?

C. Here's a pen poser. A stationer bought a number of fountain pens for £1. One he kept for himself, and another for his son: the rest were sold for 22/- altogether. If he made 9d profit on each pen, how many pens did he buy?

If you're good at tongue twisters, try saying this six times quickly: RED LEATHER, YELLOW LEATHER.

Crossword Puzzle No. 11



ACROSS

1 Found in detective stories
5 To talk
9 Metal
10 Portion of a curve
11 Town in N. France
13 For thinking
15 On its own
17 First appearance
19 District attorney
20 Doves do it
22 A number
24 A measurement
26 A ship has it
28 A musician
31 Where pigs seem at home
32 Seize
33 Distant
35 Hesitant
36 Plenty
38 Used to record
40 Grieves
41 - - and behold!
42 Wide awake
44 Everything
45 The sheltered side
46 Used in porridge
49 Hollow depressions
50 Bargains

DOWN

1 An eye-glass
2 A Conservative
3 To make a mistake
4 Peruse
6 A portion
7 A period
8 Sour
11 Beside
12 Fixed firm
13 A confection
14 Unpleasant
16 Carol title
18 Airline initials
21 Lost
23 Concerning the nose
25 Collect
27 Short walk
29 Deplores
30 Wars
34 Seen in the market
35 Pace
37 Charges
39 Beer
43 20 cwt.
44 Eastern name
47 To
48 One

Advertisement Enquiry Service
January

If you would like further information on any of the products and services advertised, please tick in the appropriate space, fill in the coupon and return to us.

- ☐ Adana
- ☐ Archer
- ☐ Ashford
- ☐ Battstamps
- ☐ Bata
- ☐ Beaumont
- ☐ Beck
- ☐ B.S.A. Guns
- ☐ Birkdale
- ☐ Butlins
- ☐ Blick
- ☐ Boys & Girls Exhibition
- ☐ H.M.S. Conway
- ☐ Crown Agents Stamp Bureau
- ☐ Falcon
- ☐ Gee-Kay
- ☐ H.A.C.
- ☐ Hattons
- ☐ Harleyford Press
- ☐ Humbrol
- ☐ Hinton
- ☐ Johnsons of Hendon
- ☐ KeilKraft
- ☐ King Charles
- ☐ Lang
- ☐ Meccano (Dinky Toys)
- ☐ Meccano (Plastic)
- ☐ Meccano (Power)
- ☐ Meccano
- ☐ Mellor
- ☐ Minimodels
- ☐ Mitchell
- ☐ Morley
- ☐ Odhams Books
- ☐ Philips Electric
- ☐ Peco
- ☐ Railway Modeller
- ☐ Rearden Smith
- ☐ Rovex
- ☐ Royal Navy
- ☐ Stamp Club
- ☐ Sea Breezes
- ☐ Seccotine
- ☐ Solarbo
- ☐ T. H. Smith

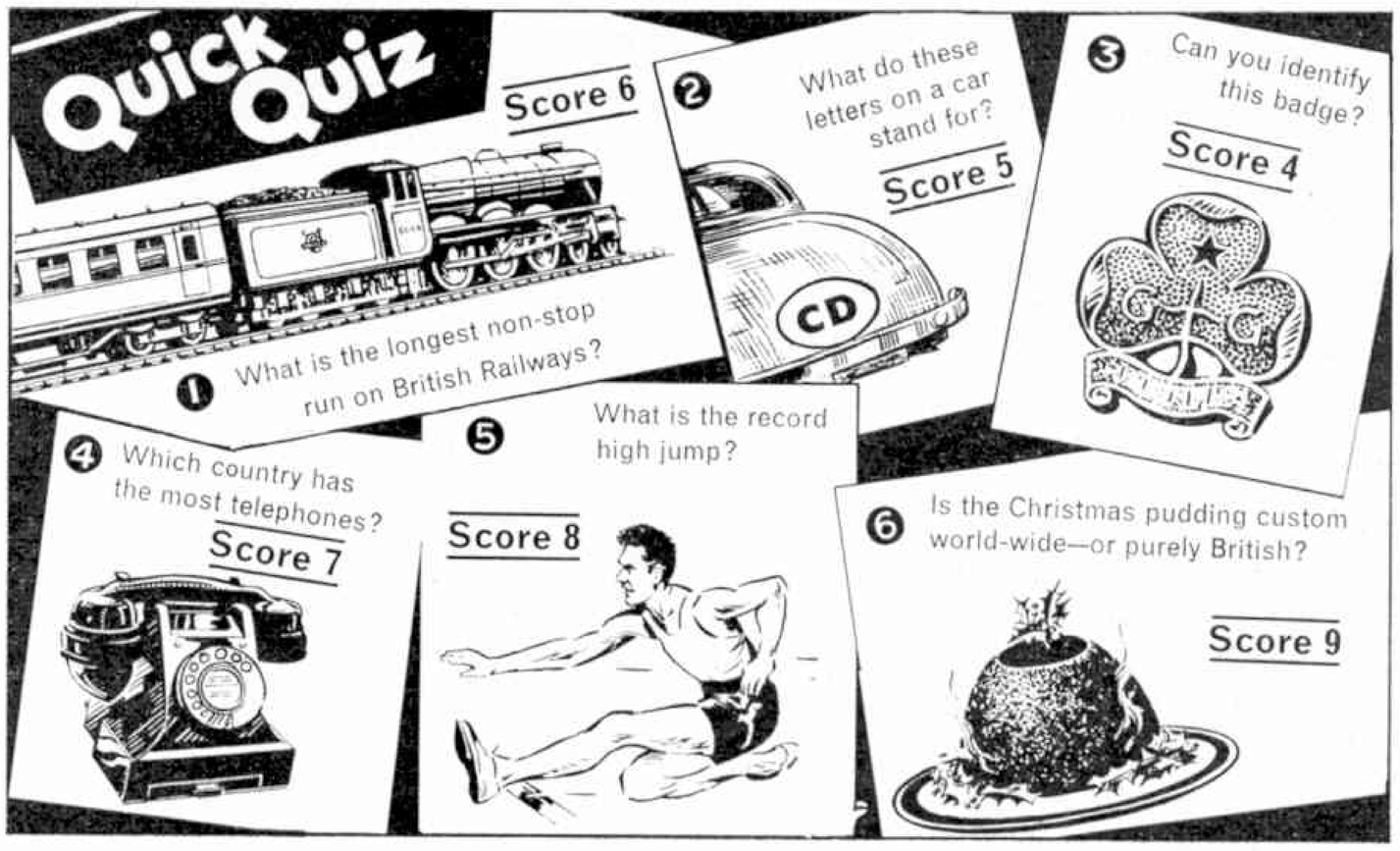
To: Meccano Magazine, St. Alphage House, Fore Street, London, E.C.2.

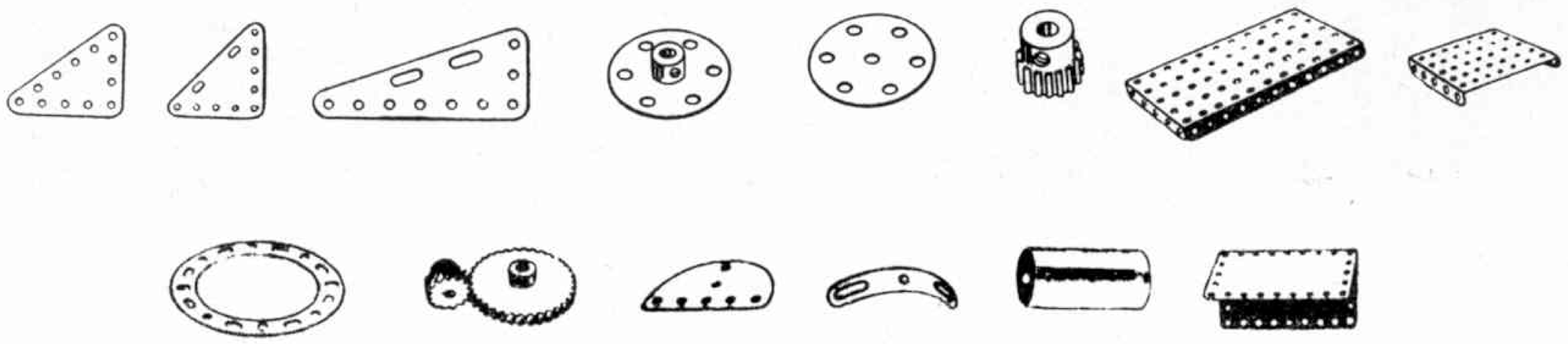
NAME .....

ADDRESS .....

.....

Another form for your friends on page 47.


Quick Quiz
Score 6
1 What is the longest non-stop run on British Railways?
2 What do these letters on a car stand for?
CD
Score 5
3 Can you identify this badge?
Score 4
4 Which country has the most telephones?
Score 7
5 What is the record high jump?
Score 8
6 Is the Christmas pudding custom world-wide—or purely British?
Score 9



Dealers who specialise in Meccano spare parts

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can, of course, order Meccano spare parts for their customers, but those listed here are among our spare part specialists.

C. G. MARSHALL
Maxwell Road
BEACONSFIELD
Telephone: 1092

TETT'S THE IRONMONGERS
402 Wimborne Road
Winton, **BOURNEMOUTH**
Telephone: Winton 309

H. SALANSON & CO. LTD.
83-85 Fairfax Street
BRISTOL 1
Telephone: 2-6185

BARRETT'S LTD.
2 St. George's Street
CANTERBURY
Telephone: 66161

GORDON EASTON & CO.
40 Lowther Street
CARLISLE
Telephone: 22947

R. M. HILL & SONS
36/40 Castle Street
CARLISLE
Telephone 21621 and 21122

W. PAINE & CO. LTD.
168 High Street
CHATHAM, Also at Strood and Grays
Telephone: 45215

DOLL'S HOSPITAL (YOUNGSTERS)
55 Hallgate
DONCASTER
Telephone: 2831

THE GUILDFORD
DOLL'S HOSPITAL LTD.
13 Swan Lane, **GUILDFORD**
Telephone: 61331

LUCAS'S (Hobbies) LTD.
7 Tarleton Street
LIVERPOOL 1
Telephone: Royal 7562

H. A. BLUNT & SONS LTD.
133 The Broadway, Mill Hill
LONDON N.W.7
Telephone: Mill Hill 2877

JEREMY
16 Princes Arcade, Piccadilly
LONDON, S.W.1
Telephone: Regent 1846

F. T. B. LAWSON LTD.
New George Street
City Centre, **PLYMOUTH**
Telephone: 65363

LANE'S TOY SHOP
75 High Street
ROCHESTER
Telephone: Chatham 41870

WILTONS SPORTS AND GAMES
Corner Canal and Queen Street
SALISBURY
Telephone: 2984

JOHN W. BAGNALL LTD.
18 Salter Street
STAFFORD
Telephone: 3420

LESLIE BROWN
Super Toy and Model Store
95 High Street, Stockton-on-Tees
Telephone: 67616

L. A. RICHARDS LTD.
92 The Broadway
Wimbledon, S.W.19.
Telephone: LIBerty 1155

OVERSEAS DEALERS

AUSTRALIA

Jack Stanbridge's Hobby Shop
54a Canning Highway
Victoria Park, **PERTH, W. Aust.**
Telephone: 61-1668

NORTH SHORE HOBBIES PTY. LTD.
(Mail Order, Parts and Sets)
8 Post Office Street
Pymble (SYDNEY) N.S.W.

Walther & Stevenson Pty. Ltd.
395 George Street
SYDNEY
Telephone: 29 3566

NEW ZEALAND

BUNKERS LTD.
P.O. Box 58
HASTINGS
Telephone: 84-283 (Mail orders welcomed)

'66 with a BANG!

Dinky Toys News by Chris Jelley

START the year in style" seems a good motto to me and Meccano Limited appear to have the same idea in mind with regard to Dinky Toys. Not only do they enter 1966 with the most elegant and stylish make of car in the world, but they are also releasing two—not one—TWO accompanying miniatures, making THREE new models in all. This, as you will agree, is a very rare occurrence indeed in the world of die-cast modelling.

At the risk of repeating myself, to my mind, the world's most elegant and stylish make of car is the Rolls-Royce. The version on which the new Dinky is based is the Rolls-Royce Phantom V Limousine. This is a big and luxurious vehicle and, as might be expected, so is the model; $5\frac{11}{16}$ in. long, it is fitted with four opening, upholstered doors, an opening boot and an opening bonnet giving access to a detailed, silver engine. Radiator and bumpers are plated too.

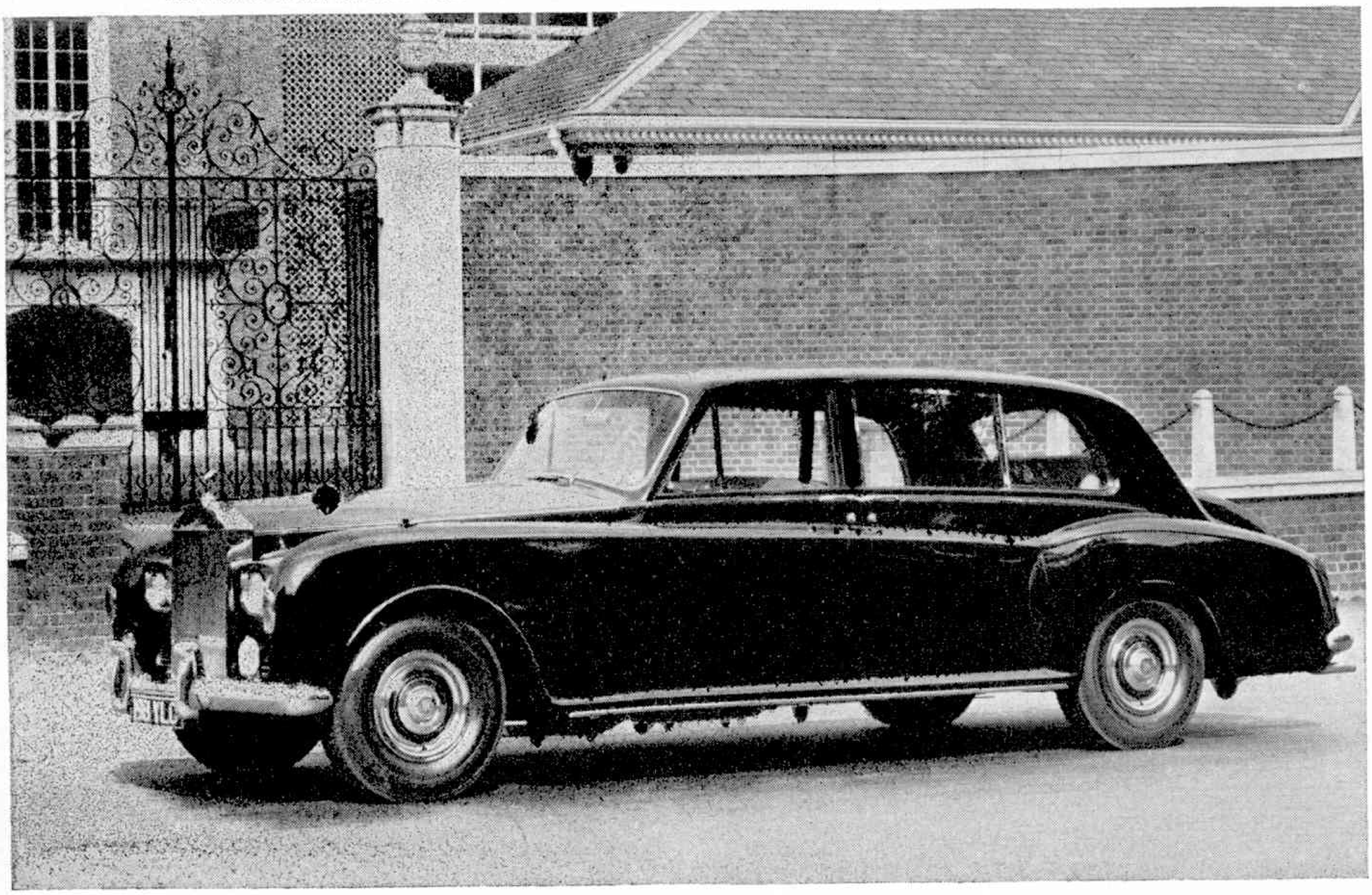
A feature entirely new to Dinky Toys are wing mirrors and these are fitted in addition to standard fixtures such as windows, seats and steering wheel, Prestomatic steering and four-wheel suspension. Not quite so common, although not brand new, are the jewelled headlamps and detailed dashboard.

One of the main distinguishing features of a limousine is the seat-to-roof partition separating the driver—usually a chauffeur—from the passengers. Without this, the Dinky Toy would not be a limousine and so, of course, this feature is also included in the model along with a uniformed chauffeur and two passengers—one lady and one gentleman! Finish is in a tasteful deep blue, and the interior is finished in light stone.

In real-life, the Phantom V Limousine can be found in every corner of the globe. In fact, it is often the official car used by many Heads of State throughout the world. Despite its size, it is comparatively easy to drive slowly in traffic, thanks to power-assisted steering and automatic transmission.

Motive power is provided by an eight-cylinder, o.h.v. engine with the enormous capacity of 6,230 c.c. The manufacturers have not revealed the brake horse power produced by this magnificent piece of machinery, but it must be very high. Maximum speed is listed as being 100 m.p.h. with 85 m.p.h. as the cruising speed. Average fuel consumption is only 12 m.p.g., but anybody who can afford to buy a Rolls-Royce doesn't worry about fuel consumption!

Last word in luxury, The Rolls-Royce Phantom V Limousine. It accommodates seven passengers in addition to the chauffeur



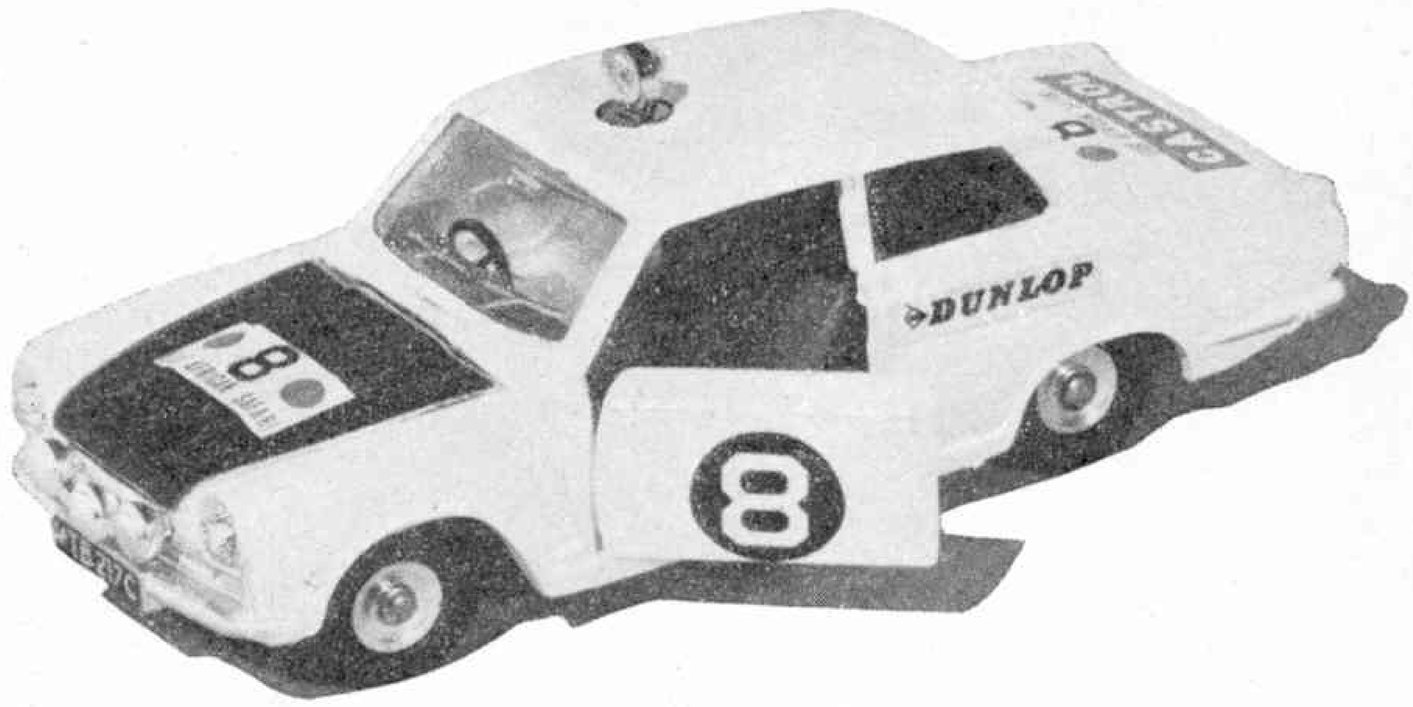
And the V.W.

Leaving the world's most luxurious car we move on to the world's best-selling car. As all motor car enthusiasts will know this is the renowned "Beetle"—the little Volkswagen de Luxe Saloon. The sales of this distinctive little car are phenomenal, and I am sure it is the most popular foreign car in virtually every country throughout the world. I came to this conclusion when watching a recent television programme, in which general views of traffic in six foreign capitals were shown. There were far more Volkswagens in evidence than any other single make of foreign car. The 10 millionth Volkswagen was displayed at the 1965 Motor Show!

The current Volkswagen de Luxe Saloon is powered by a four-cylinder o.h.v. rear-mounted engine of 1,285 c.c. capacity, that develops a gross power output of 50 b.h.p. Top speed is 75 m.p.h., and the car will cruise at this speed over long distances. Volkswagen, in fact, claim that all their current models will travel "flat out" over long distances, and this proves that their engines are first-class.

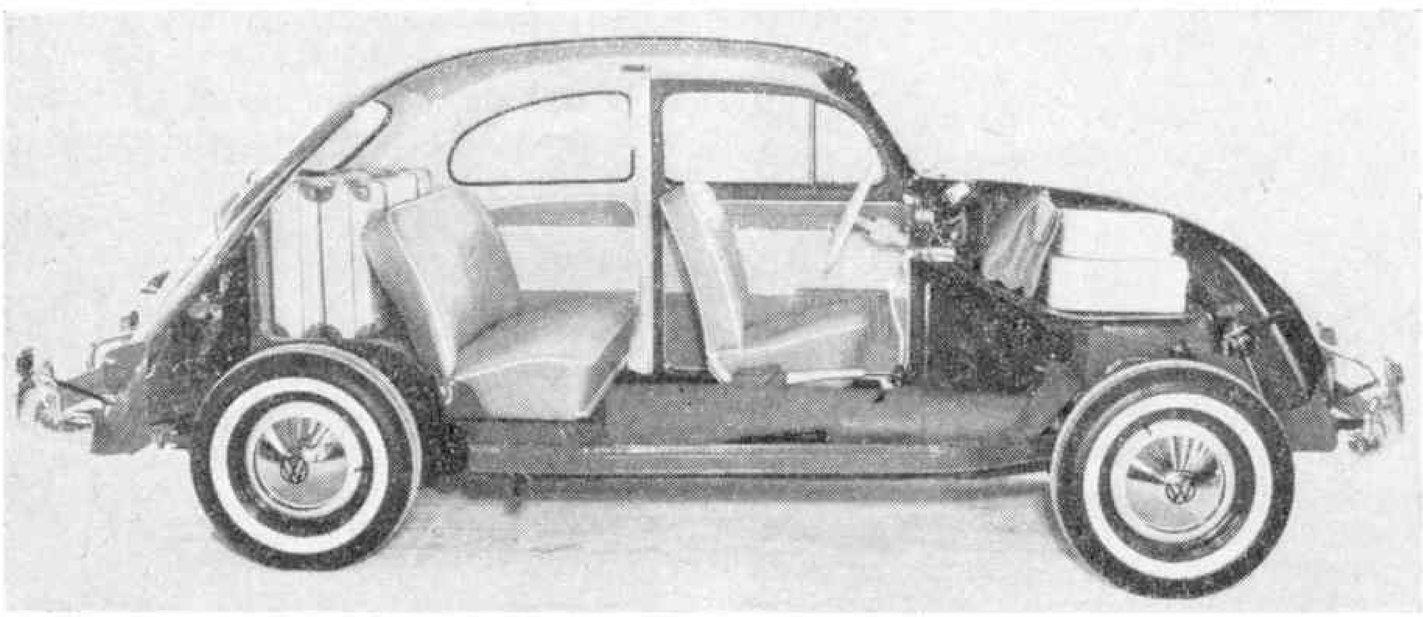
Marketed under Sales No. 129, the Dinky Volkswagen de Luxe Saloon is an excellent reproduction of the full-sized vehicle. Like the original, it is fitted with two opening doors, plus an opening luggage compartment at the front and an opening engine compartment at the rear. Other features include windows, seats and steering wheel, in addition to four-wheel suspension, jewelled headlamps, and plated bumpers. The backs of the front seats tip forward, allowing access to those in the rear. Finish is in an appealing mid-blue with ivory interior.

Unfortunately, the models are so new that photographs of both this model and the Rolls-Royce (No. 159) were not available at the time of writing, but I will publish illustrations at the first possible opportunity.



Dinky Toys No. 212 Ford Cortina Rally Car—"an eye-catching model"

A sectioned Volkswagen de Luxe Saloon, affectionately termed "Beetle" by motor car enthusiasts



The Rally Cortina

Luckily I do have a photograph of the third and final new release, the Ford Cortina Rally Car No. 212. As you will see, this is the standard Cortina with extras. Standard features are opening doors, full interior fittings, Prestomatic steering, windows, four-wheel suspension, and jewelled head and tail lamps. Extras include a swivelling spotlamp on the roof and a cluster of three spotlamps attached to the radiator.

The overall finish is off-white with red interior and black bonnet. Spread across the bonnet is an East African Safari sticker, and the figure 8 flanked by two red dots. A similar sticker is mounted on the boot lid, together with a Castrol advertisement in white lettering on a red background. On each door is a large figure 8 in white on a black circle, while beneath each rear side window is a Dunlop advertisement in black on a yellow background. This really is an eye-catching model.

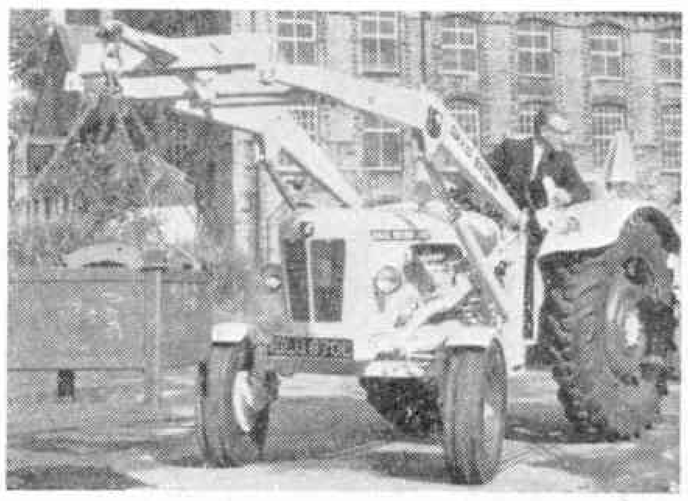
In real-life the Cortina on which our model is based is powered by a four-cylinder o.h.v. engine of 1,498 c.c. capacity with a power output of 59·5 b.h.p. giving the car a maximum speed of 83 m.p.h. While these figures apply to the standard version, a car entered for a world-famous rally such as the East African Safari, would probably be highly tuned, resulting in greatly improved performance.

David Brown Special Tractor

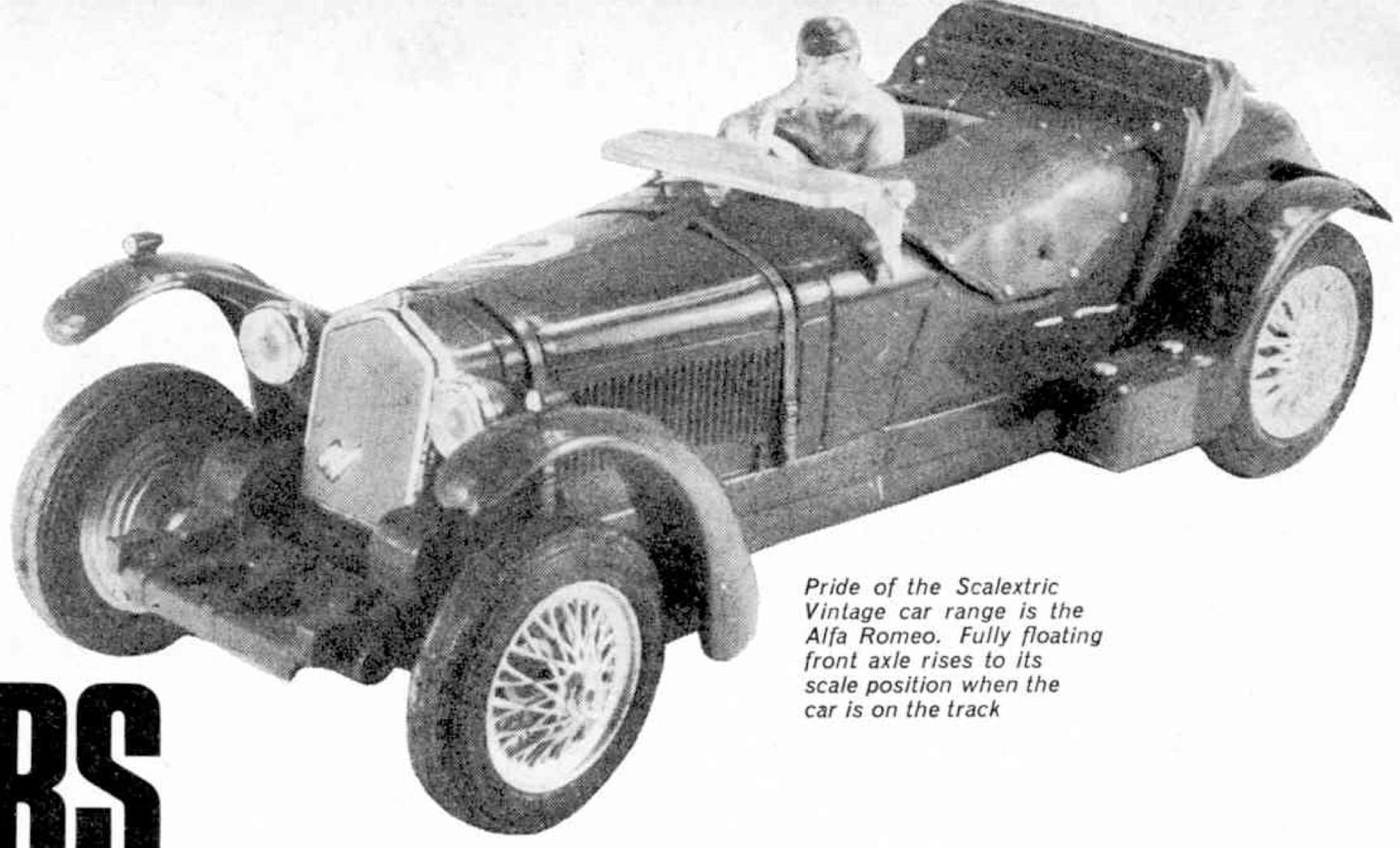
In last October's 'M.M.'. I featured the Dinky Toy David Brown Tractor. This picture which I think you may find interesting shows the first of sixteen specially-equipped David Brown 990 Industrial Tractors ordered by the G.P.O. for cable laying operations, being inspected by G.P.O. engineers before despatch from the factory in Yorkshire.

The tractor was one of a batch of four similarly equipped vehicles destined for use at Ipswich, Belfast, Glasgow and Southampton. Each has a front loader-crane and rear mounted winch. The equipment is designed to haul cable laying ploughs and to handle small cable drums and associated gear. The tractors are 52 b.h.p. models with heavy duty front axles, front mounted hydraulic pumps, and six forward and the two reverse gears.

Incidentally, the David Brown people have pointed out to me that the tractor is not intended primarily for the American market, as I had said, although substantial quantities are sold in the U.S.A. The 990 is designed to suit farming conditions in every country of the world, the model sold in the U.S.A. being a special version—sorry!



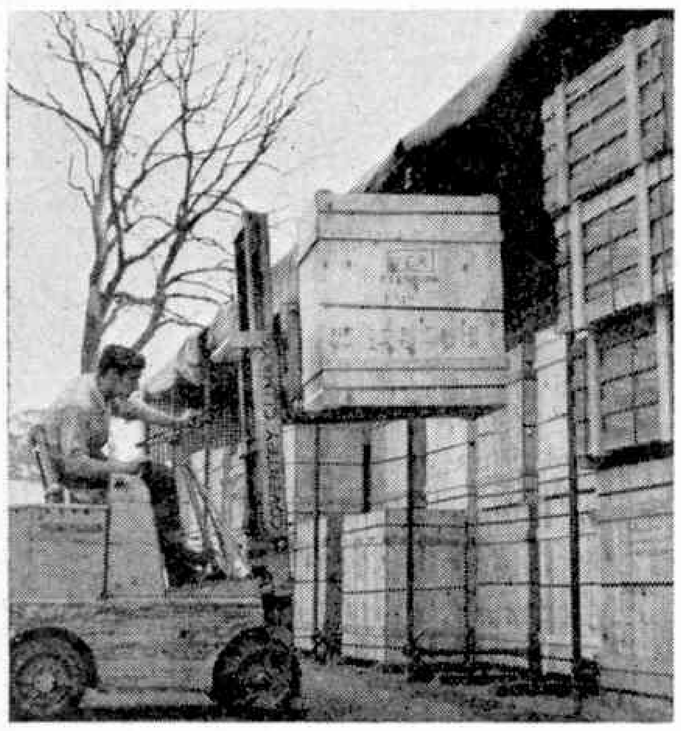
THE CAR MAKERS



Pride of the Scalextric Vintage car range is the Alfa Romeo. Fully floating front axle rises to its scale position when the car is on the track

Ever wondered what it would be like to visit the factory where Scalextric cars are made? PIT-MAN takes you there on these two pages!

1 SETS GALORE! One of the lines where Scalextric Sets are packed; after leaving here they are wrapped and boxed in their outer cartons and despatched to destinations in all parts of the world



2 Crates awaiting transportation to the Docks to meet the world wide demand

WELCOME to the many thousands of new Scalextric enthusiasts in all parts of the world who join our ranks this Christmas.

I have decided to devote our entire space this month to the Minimodels Ltd. factory at Havant, near Portsmouth, where Scalextric is manufactured. With my limited space I shall only be able to show you a few of the many processes involved, but I hope that in future editions of Meccano Magazine I will be able to return to the subject in rather greater detail.

Circuits in miniature

Although each year, many hundreds of thousands of complete sets are manufactured and distributed all over the world, less than 50% of the total factory production is devoted to them. For those of you who have been Scalextric enthusiasts for some time this will not be surprising—very quickly new recruits to this most fascinating of motor sports will discover how much excitement and realism can be gained by building up their circuit with the addition of extra track and trackside equipment.

As you will have seen from your Scalextric catalogue there are no less than fourteen different sorts of track sections, this is not counting chicanes, bridges and pit stop sections, and with such a variety very accurate replicas of well known racing circuits can be reproduced. This includes every kind of corner, bend or hazard and even the necessary equipment to reproduce the famous start for the Le Mans 24 Hour Race.

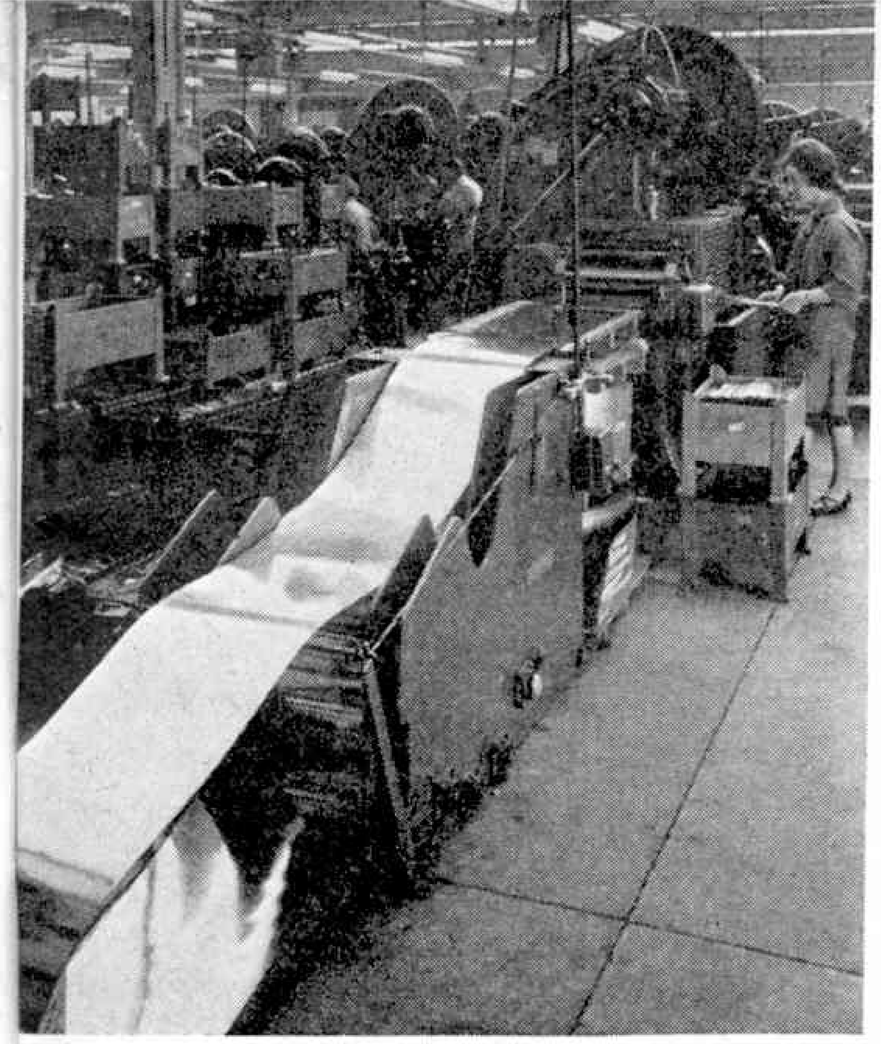
For this reason there is a very large section of the factory devoted to the production of track and as our pictures show, considerable space is occupied by the banks of injection moulding machines necessary for such output. These are the machines which produce the basic track—that is the moulded plastic pieces to which has to be fitted the metal track rails. As each section of track incorporates four metal track rails and the average daily production is in the order of 50,000 pieces of completed track, you will appreciate that the production of track alone is a major operation.

From similar injection moulding machines come the basic bodies of the wide variety of racing cars made at this factory. Into each car the driver has to be inserted, wheels assembled and fitted, pick-ups and the whole of the motor assembled and carefully placed in position. So there's quite a lot of time spent on the complete assembly of even *one* car — and at Minimodels the cars are counted in their *millions!*

In picture 5 you will see a line of operators winding the coils for the tiny electric motors, each one is wound by hand and each has a specific number of turns—it's quite a job.

Each car is then individually tested before it is packed—some separately and others into sets of various sizes, for sending all over the country and all over the world.

I understand from Minimodels Ltd. that they have a host of surprises for 1966. I don't know anything about them yet (they're still very secret), but after the publication of their seventh edition of the Scalextric catalogue I hope to go through them with you. In the meantime—have fun and keep practising.



3

4

3 From this roll of sheet metal are being produced the electric conductor rails for Straight Track Sections

4 All cars are tested before leaving the factory, this is just one of a large number of test tracks which are used

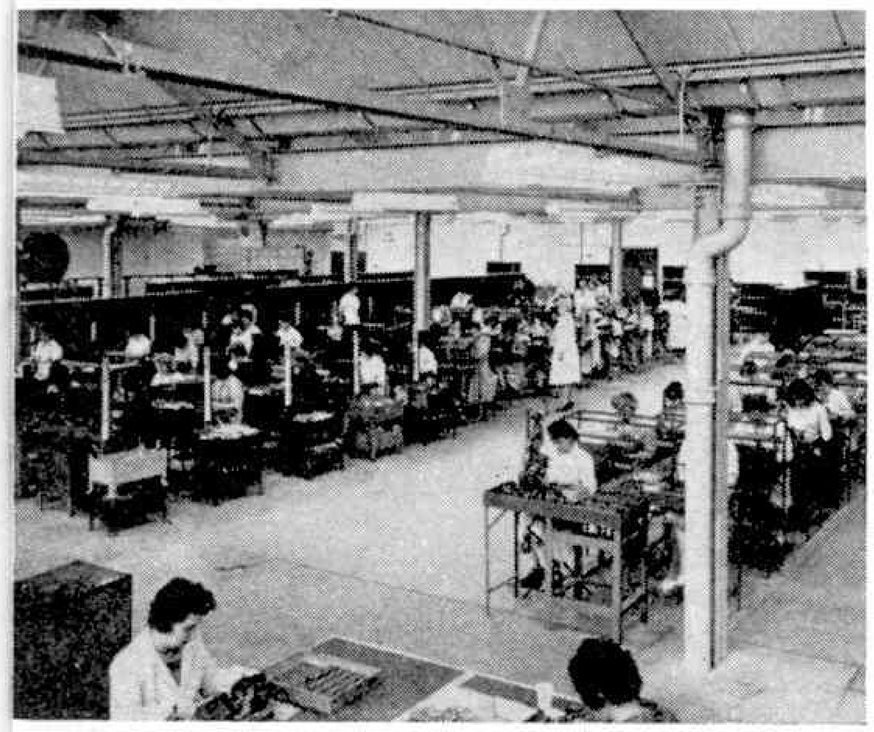
5 One of the lines of skilled operators producing the motors which power your cars, in the background can be seen stacks of unfinished track awaiting the insertion of conductor rails and final inspection

6 Some of the injection moulding machines. Machines such as these mould the plastic parts for your cars, track and accessories

7 A small part of the assembly section at the Minimodels Factory

8 A section of the press shop, where metal parts are stamped out for track rails and various car parts

5



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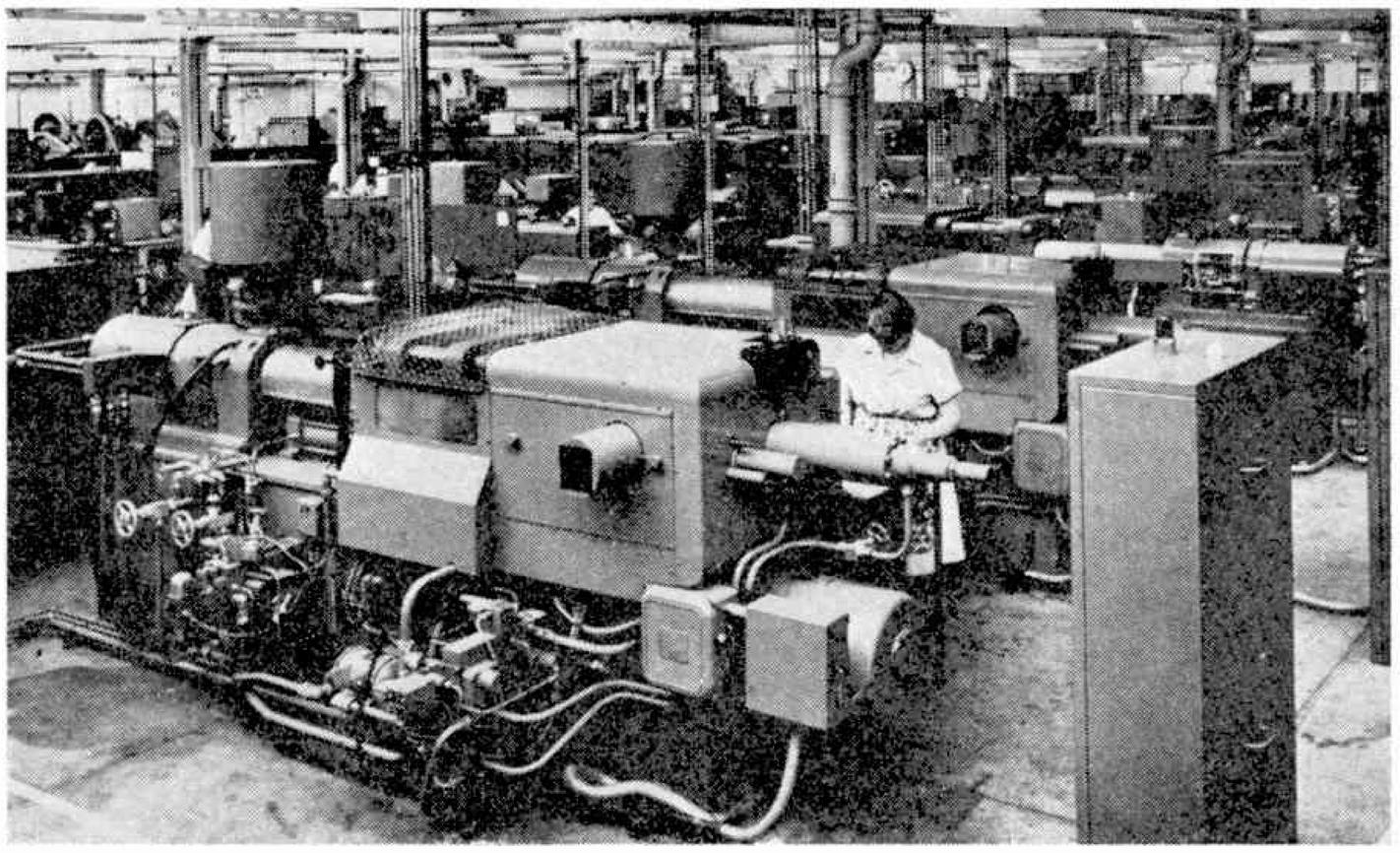


8

OUR FIRST 50 YEARS

by 'Historian'

HALF a century has passed since the single sheet news bulletin changed its name and added an additional page to become No. 1, Vol. 1, of the 'Meccano Magazine', the direct ancestor of the present Magazine and one of the few of its type to survive the many financial crises, national depressions, not to mention two global conflicts, that have occurred during the past fifty years.

The world in which this rather sparsely illustrated four page leaflet was born, was totally different from the world that we know today. Flight, radio, the telephone, and even the motor car were in their infancy, and television, synthetic fabrics, social services, and a host of other modern conveniences that we take for granted now, were unheard and undreamed of. The Britain of 1916 was still largely dependent on the horse for transport and haulage, and trams monopolised the streets of many large cities. Railways were, of course, in their heyday, having virtually no competition from the roads of the day.

The introduction of the M.M. came about by accident, its predecessor, the Meccano newsletter, being issued to advise, inform, and help users of the Meccano construction system, an object incidentally that the magazine still partly serves to this day. This single sheet news bulletin, which in 1916, became the 'Meccano Magazine', was a rather bare paper compared to the present highly illustrated publication. It had no separate cover, and the magazine relied almost entirely on line drawings for its illustrations. Not until 1920 were articles and features of general interest included in the magazine, and only shortly after this were covers added.

Much of the popularity of the M.M. was due to its informative articles and its emphasis on engineering; and at an early stage features on the more technical aspects of the revolutionary wireless were published, almost as quickly, in fact, as the invention was introduced to the public! Readers were often treated to exclusive interviews with famous men, such as Sir Ross Smith—the first man to fly between England and Australia—and Edouard Bromly of Paris, a pioneer in radio. Inventions and engineering were a favourite subject in the magazine and earned it acclaim from people in nearly every industry, including Sir Josiah Stamp, President of the London, Midland and Scottish Railway, Sir Nigel Gresley and many others.

This set the pattern for future editions of the magazine and a most interesting series of articles on the lives of famous engineers was featured in the 1924-25 volumes. Railways also began to take a prominent place, and two or three articles on the subject were published every month. Among them, the locomotive trials of 1925, which were described as they occurred, and many other features of topical or historical interest, from famous locomotives, to the history of individual railway systems, and the lives of the engineers who pioneered and built them.

The 'M.M.' always had something of a reputation for publishing the unusual or off-beat, and one article that in particular comes to mind was the one dealing with the iron house at Tipton. A long-running series of articles was also published on Electricity and the Conquest of the Air. In 1923 the first of a series of articles for stamp collectors was printed and indeed continues to this day. Although by different authors, this is one of the oldest regular features in the 'M.M.' and has always attracted a large number of readers.

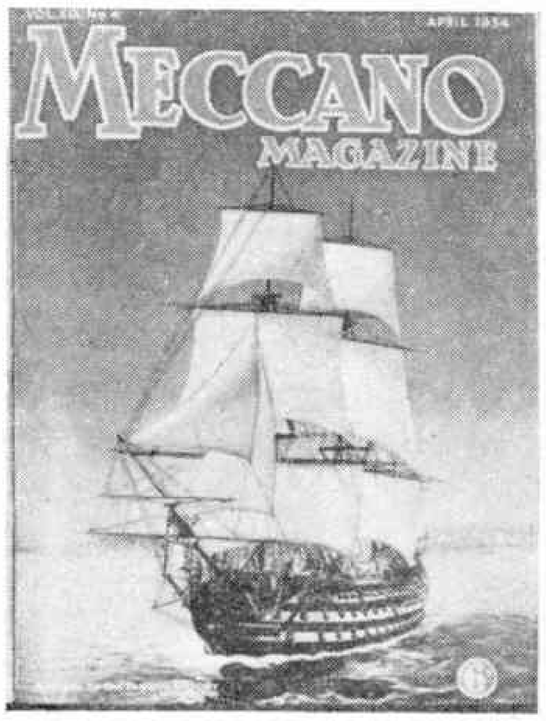
The price of the first magazine was 1d., or 2d. with postage! This was increased four years later to 2d., although by this time the magazine had also been increased in thickness — indeed by the middle 1930's over 80 pages were regularly included, which was good value for 6d! The first Editor was Mr. Frank Hornby himself, the founder of Meccano Limited, but in 1924 Mr. Hawks was appointed first full-time Editor, and the magazine increased in size and scope. In 1932, a new Editor was appointed, Mr. W. M. McCormick, who continued the same editorial policy, and a set pattern of regular features on Meccano building, stamp collecting, railways, Hornby Trains, Air News, wireless and engineering emerged and earned the magazine a very wide readership.

Wartime paper restrictions forced many magazines to reduce their size, and in 1942 the Meccano Magazine was reduced in format to make it more of a pocket size. Mr. F. Riley became Editor in 1951, and the price of 6d. was still maintained for a short period, but with only forty-four editorial pages. The style of the Magazine was changed to give it a rather more modern appearance, with more illustrations, but with the same classification of editorial content.

The format of the magazine was increased in 1960, and the new Editor, Mr. G. Byrom, introduced a new style, with the emphasis, as always, on General Interest. Hitherto, the magazine had been published by Meccano Limited, and in 1960 it was taken into the International Publishing Corporation and given a new look with a still further increase in format size and more pages. Mr. J. D. McHard, the present Editor, had this to say about present and future editorial policy.

Continued on page 39

1



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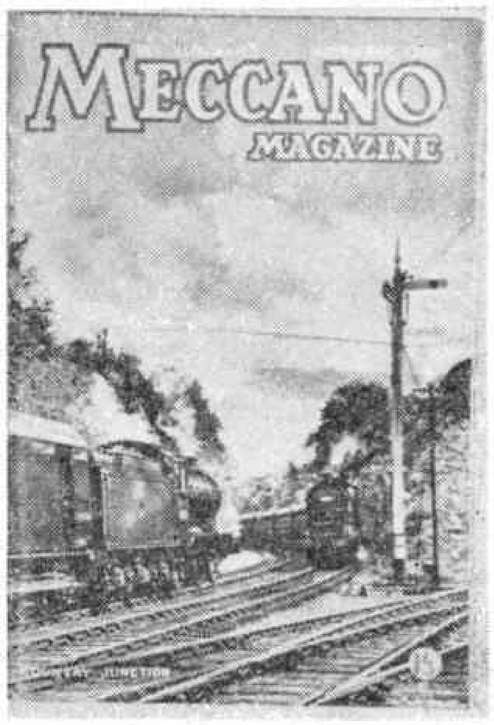


3

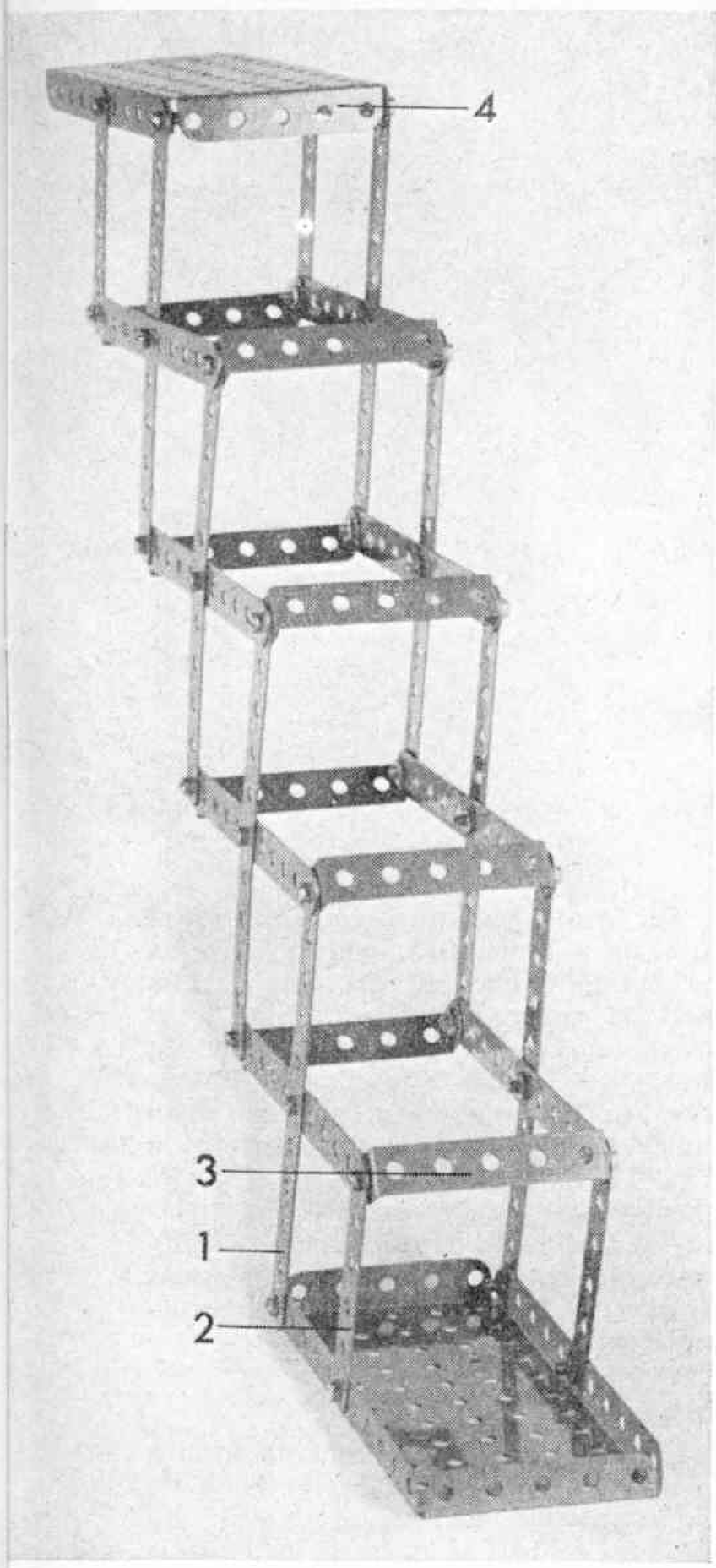
1 *Vol. 1, No. 1 consisted of four printed pages and was the successor to the Meccano newsletter*

2 *80 pages for 6d. That was in 1934 though, when 6d. was worth at least 2s. 6d. by todays' standards. The constructional project that April was H.M.S. Victory*

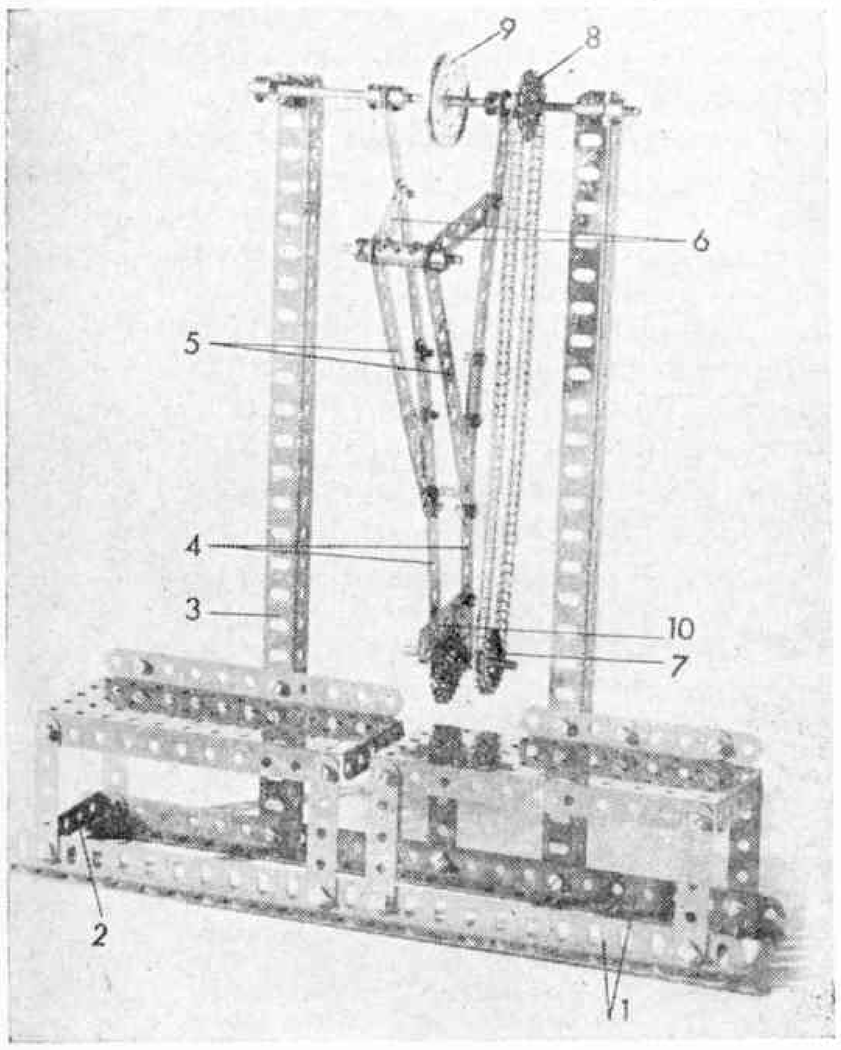
3 *Meccano Magazine still retained its reduced wartime 'pocket' page size right up to and including 1959. The traditional 'painted photograph' cover pictures also survived but their old fashioned appearance was not in keeping with a progressive editorial policy*

TWO FROM THE PAST

by spanner



Above: The simple periscope. Below: the swing saw



Meccano, as a system, has continued with very little basic change since its earliest days. New parts have, of course, been added over the years and some of the older parts withdrawn, but it is still possible to build models designed 50 years ago with the current system.

As proof of this statement, I feature below two of the sixteen constructions which were illustrated in the very first issue of the Meccano Magazine. These models, a Periscope and a Swing Saw, have been built up using existing parts and, except for two minor differences, are identical to the originals. The differences in question are in the slight change of design in the present 5½ in. by 2½ in. Flange Plates and 1¼ in. Pulleys. The early Plates did not have end flanges and the early Pulleys had only four holes in their faces instead of the current eight holes.

Periscope

Dealing first with the Periscope, this is amazingly easy to build. A 5½ in. Strip 1 and a 3 in. Strip 2 are bolted to each side flange of a 5½ in. by 2½ in. Flanged Plate. Strips 1 and 2 are then connected by another 5½ in. Strip, at the same time bolting a 2½ in. by ½ in. Double Angle Strip 3 in place. Further 5½ in. Strips and 2½ in. by ½ in. Double Angle Strips are added, as shown, and construction is completed as it began with the last 5½ in. Strip being bolted, along with a 3 in. Strip, to a second 5½ in. by 2½ in. Flanged Plate 4.

Although not shown in the illustration, ordinary oblong hand mirrors are fitted into the Flanged Plates, Washers on the shanks of Bolts fixed in the Plates holding them in position. The mirrors are of the type found in ladies' handbags or they can be purchased separately at most haberdashery shops, or stores such as Woolworths, etc.

Parts Required

16 of No. 2
4 of No. 4
32 of No. 37a
32 of No. 37b
8 of No. 48a
2 of No. 52

Swing Saw

Rather more complicated than the Periscope, but still easy to build, is the Swing Saw. A 'split' bench is built up from two 5½ in. by 2½ in. Flanged Plates, each connected to two 12½ in. Angle Girders 1 by four 2½ in. Strips. At the same time, a 2½ in. by ½ in. Double Angle Strip 2 is bolted between Girders 1 at each end. Another two 12½ in. Angle Girders 3 are bolted to the bench as shown. Bolted to one of these Girders is a 5½ in. Strip while, to the other, is fixed a compound 4 in. Strip, made up from a 3½ in. and a 2½ in. Strip. Both Strips are connected to the Flanged Plates by Fishplates.

The swinging arm is built up from two compound 9½ in. Strips 4, each obtained from two 5½ in. Strips, which are connected by a Double Bracket, at the same time bolting two further 5½ in. Strips 5 in place. Also bolted to Strips 4 are two 2½ in. Strips 6. Strips 5 and 6 are then joined as shown by a Coupling and two Collars on a 2 in. Rod. Journalled in the lower end of Strips 4 is another 2 in. Rod, carrying a 1½ in. Sprocket Wheel representing the circular saw and held in place by a 1 in. Sprocket Wheel 7 and a Collar.

When completed the arm is mounted on a 6½ in. Rod, along with a 1 in. Sprocket Wheel 8, 3 Collars and a 1½ in. Pulley 9. The Rod is journalled in Angle Brackets bolted to Angle Girders 3, Collars holding it in place. A 2½ in. Strip 10 is added to act as a handle for controlling the swinging arm and finally Sprocket Wheels 7 and 8 are connected by Chain. The drive, incidentally, is taken from a power source to 1½ in. Pulley 9.

Parts Required

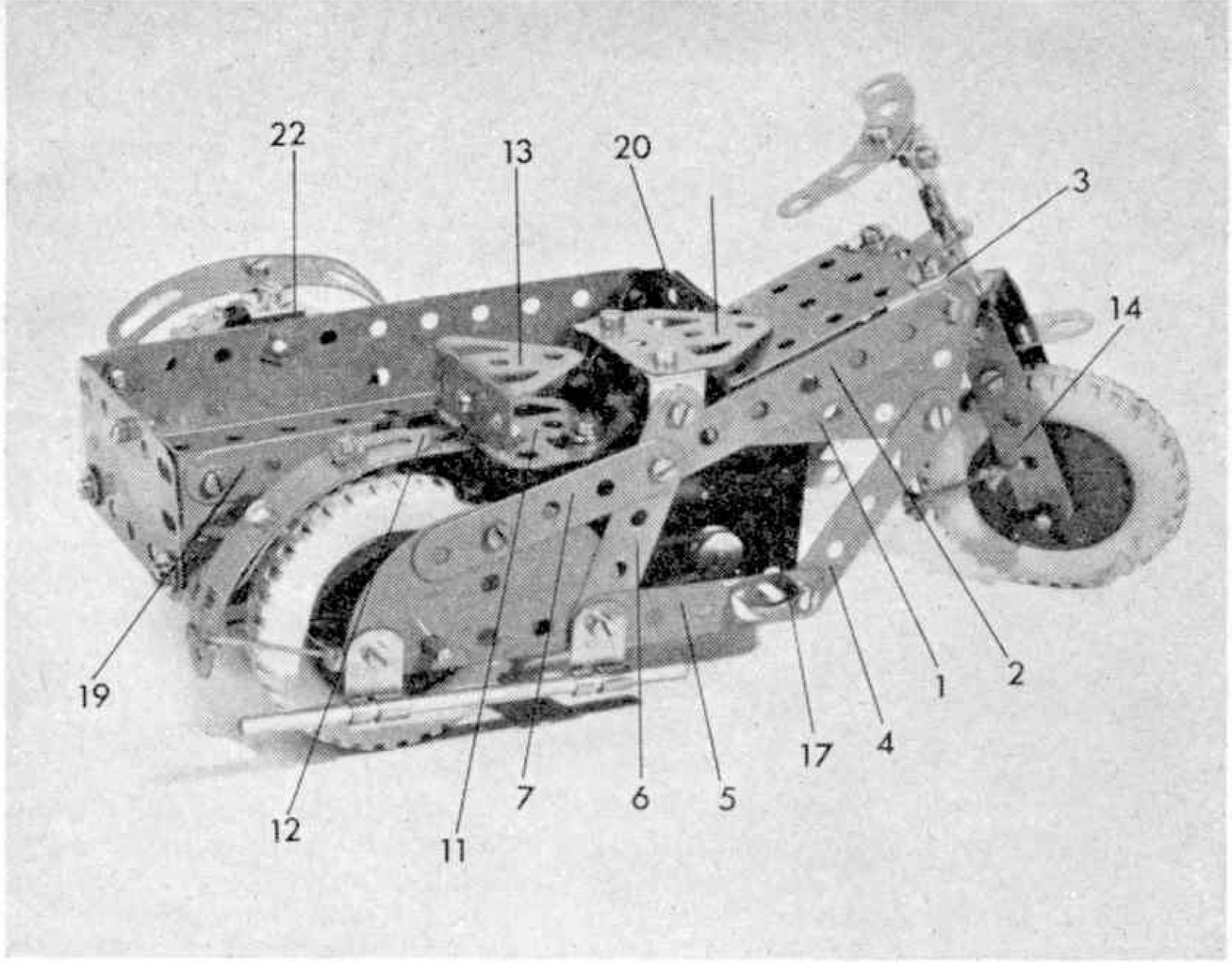
7 of No. 2
1 of No. 3
12 of No. 5
4 of No. 8
2 of No. 10
1 of No. 11
2 of No. 12
1 of No. 14
2 of No. 17
1 of No. 21
38 of No. 37a
38 of No. 37b
2 of No. 48a
2 of No. 52
8 of No. 59
1 of No. 63
1 of No. 94
1 of No. 95a
2 of No. 96

Motorised Meccano

Motor Bike and side-car

Like its full size counterpart this simple model is really exciting to run and economical to build

by Spanner

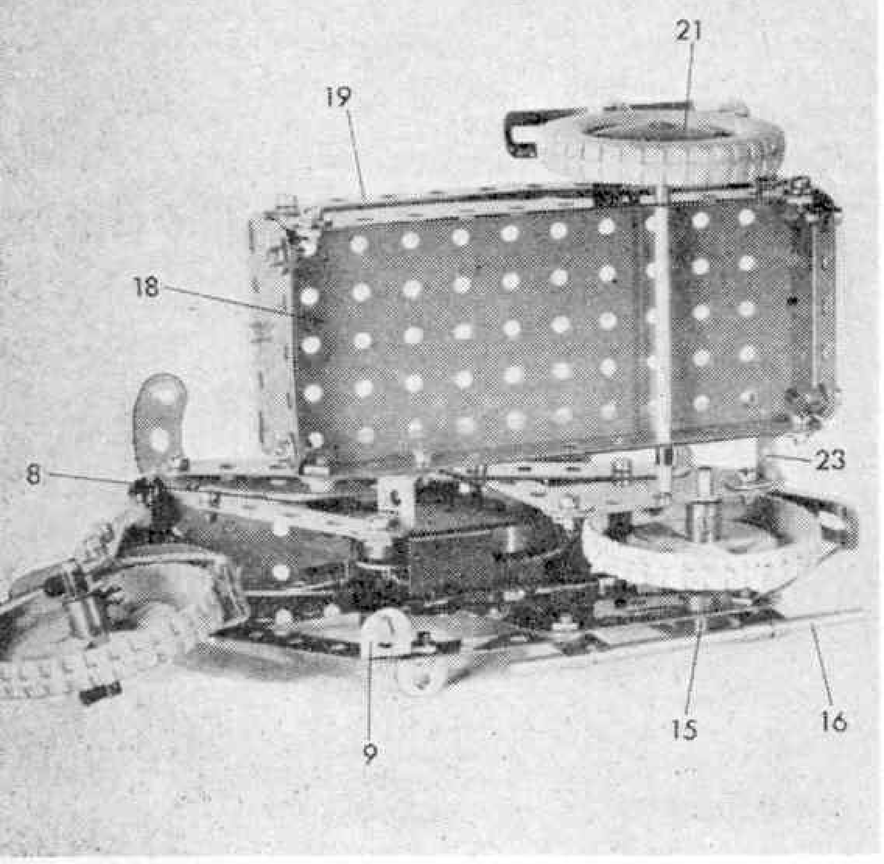


A Meccano Magic Motor provides the motive power for this simple Motor Cycle Combination

ITS lively, often spectacular, performance makes the motor cycle an ideal sporting and competitive vehicle. Its economy commends it to those who want inexpensive transportation, and in these days of congested roads, the motor cycle is often the only thing moving at all! With such a wide appeal, it is no surprise that the motor cycle's popularity continues unabated.

Motor cycles can be divided into two basic categories—solo machines and combinations. The latter, of course are combined motor cycles and side-cars and our Meccano model is based on such a machine. It is easy to build and is equipped, as you will see, not with a passenger carrying side-car, but with a box. Such vehicles are used extensively by small businesses, and it is not uncommon to see these boxes laden with window cleaners' ladders or a chimney sweep's brushes. The A.A. and R.A.C. Road Patrols are similarly equipped with slightly modified side-cars of this type.

An underneath view of the model showing the lower anchoring points for the Motor



Motor cycle

A 2½ in. by 1½ in. Triangular Flexible Plate 1 and a 3½ in. Strip 2 are fixed to a 2½ in. by 1½ in. Flanged Plate by an Angle Bracket 3. Attached to Plate 1 is a 2½ in. Strip 4, extended by another 2½ in. Strip 5 which, in turn, is joined to Strip 2 by a third 2½ in. Strip 6 at the same time fixing a fourth 2½ in. Strip 7 in place. A Semi-circular Plate is bolted to Strips 5, 6 and 7.

The left-hand side of the motor cycle is similarly built up except that the place of Strip 5 is taken by a Meccano Magic Motor, at the same time fixing a ½ in. Reversed Angle Bracket 8 in position. Both sides are then connected by an Angle Bracket 9 and a Flat Trunnion 10 attached to Strips 6 by using two Angle Brackets.

Another Flat Trunnion 11 is bolted to the Magic Motor and secured to this is an Angle Bracket and a formed Slotted Strip 12, extended by a second Formed Slotted Strip to serve as the rear mudguard. A Trunnion 13, forming the rear part of the seat, is now fixed to the Angle Bracket as shown.

Two 2½ in. Strips 14 bolted to a 1 in. by ½ in. Double Bracket represent the front forks. These are mounted on a 2 in. Rod, journalled in the lugs of a Double Bracket bolted to the 2½ in. by 1½ in. Flanged Plate and held in place by a Spring Clip. The front mudguard, a Formed Slotted Strip extended by a Fishplate, is mounted on the Rod, being fixed to the forks by Cord. A 2½ in. Stepped Curved Strip, attached by an Angle Bracket to a Rod and Strip Connector on the Rod, effectively acts as the handbars.

The front wheel is a 2½ in. Road Wheel fixed on a 1½ in. Rod, held in Strips 14 by Spring Clips. At the rear, a 2 in. Rod 15 carrying another 2½ in. Road Wheel and a 1 in. fixed Pulley, is journalled in the Semi-circular Plates. The 1 in. Pulley is connected to the small pulley on the Motor output shaft by a 6 in. Driving Band. A 4 in. Rod 16, attached to the motor cycle by right-angled Rod and Strip Connectors, represents the exhaust pipe, while an Angle Bracket 17 bolted to Strip 5 serves to represent the footrest.

Side-car

The side-car is easily built up from a 5½ in. by 2½ in. Flanged Sector Plate 18, the respective flanges of which are extended by two 5½ in. by 1½ in. Flexible Plates and two 2½ in. by 1½ in. Flexible Plates. The upper edges of the 5½ in. by 1½ in. Plates are overlapped by 5½ in. Strips 19, at the same time bolting a 2½ in. by ½ in. Double Angle Strip 20 in place at each end.

A 4 in. Rod serves as the rear axle, being fixed in place by a 2½ in. Road Wheel 21 on the nearside, and by a Spring Clip on the offside. Bolted to nearside Strip 19 is an Angle Bracket 22 extended by a Fishplate. A Formed Slotted Strip is bolted to the Fishplate to act as a mudguard. The completed side-car is finally joined to the motor cycle by Reversed Angle Bracket 8 and a similar Reversed Angle Bracket as shown.

Parts required:-

2 of No. 2	4 of No. 35	2 of No. 126a
2 of No. 3	53 of No. 37a	1 of No. 186a
9 of No. 5	53 of No. 37b	3 of No. 187
2 of No. 10	11 of No. 38	2 of No. 189
1 of No. 11	1 of No. 40	1 of No. 212
1 of No. 11a	2 of No. 48a	2 of No. 212a
9 of No. 12	1 of No. 51	2 of No. 214
2 of No. 15b	1 of No. 52	3 of No. 215
1 of No. 17	1 of No. 90a	2 of No. 221
1 of No. 18a	2 of No. 125	1 Meccano
1 of No. 22	1 of No. 126	Magic Motor

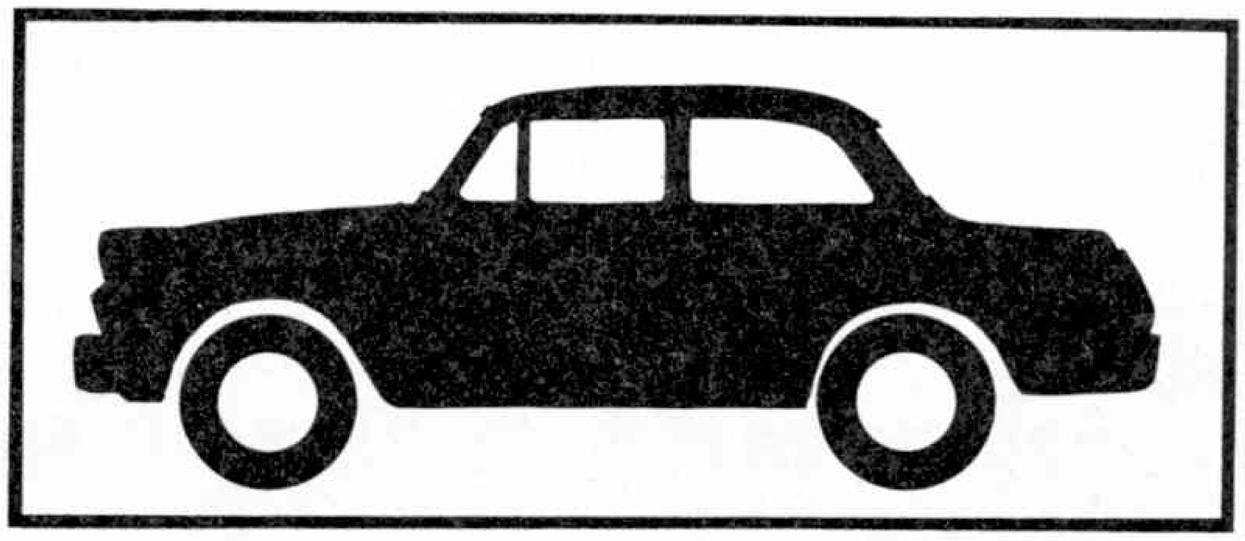
car outline COMPETITION

50 Dinky Toy Models to be won!

Fill out the form and send it to us. The names of the senders of the first 50 correct answers will be published in the next issue of Meccano Magazine. The winners will then be expected to write to us to claim their prize. The competition will be judged by the Editor of Meccano Magazine. His decision will be final and no correspondence can be entered into.

FIVE CARS will be reserved for OVERSEAS READERS. These will be selected one month after publication date.

To:—Meccano Magazine: Competition H, St. Alphage House, Fore Street, London, E.C.2.



The vehicle illustrated is:—

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.....

.....

NAME .....

ADDRESS .....

.....

Our First 50 Years from page 36

Few magazines out of the many thousands that are published live to see their half century. Every week one reads of closures yet the number of titles on the bookstalls does not decline because new publications are constantly being launched. To what, then does Meccano Magazine owe its longevity? Chiefly, I think, to the fact that it has never been afraid to alter its editorial policy in order to keep up with—and ahead of—the times.

In its early days, when radio was in its infancy and other forms of mass media unheard of, a large proportion of the magazine was devoted to 'general interest' material. Today, television and films are able to bring to life many of these subjects far more effectively than any magazine could ever do. The enormous number of readily available, inexpensive reference books, and wide use of colour printing, would make the old Meccano Magazine formula commercially unsupportable today.

The 'general interest' feature will, of course, always be present in some measure in our pages, but the subject matter will be more closely tied to one or other of the magazine hobby pages. This month, for example, John W. R. Taylor tells the story of the Ultra Light Aeroplane Trials and there's a full size plan for a flying scale model of one of the machines in the story, specially prepared by Ray Malmstrom.

With the shorter working week, and therefore more leisure time at our disposal, hobbies of all kinds are enjoying an increasing following. It is natural that this trend should be reflected in our magazine. The Meccano system, in its hey-day, was *the* constructional hobby and it is still tremendously popular despite formidable competition—a tribute to the basic soundness of the system. Since its introduction, however, the whole spectrum of the model building field has broadened and altered out of all recognition. So besides Meccano, there are now literally dozens of other constructional hobbies that must be covered if we are to keep pace with the times.

This then, is the pattern for the future. The traditional M.M. fare is not abandoned, but the emphasis is changed to cater for today's needs. Only in this way will our magazine continue, as in the past, to reflect and anticipate trends and tastes in our ever more exciting world. What will the Meccano Magazine be like in 2016, when we celebrate our centenary? One thing is certain — it *will* be *different!*

Answers to puzzles on page 30

Tricky Teasers

A. Eagle, robin, goose, pheasant, nightingale thrush, owl, starling, grouse, lark.
B. 72 and 96.
C. Ten pens.

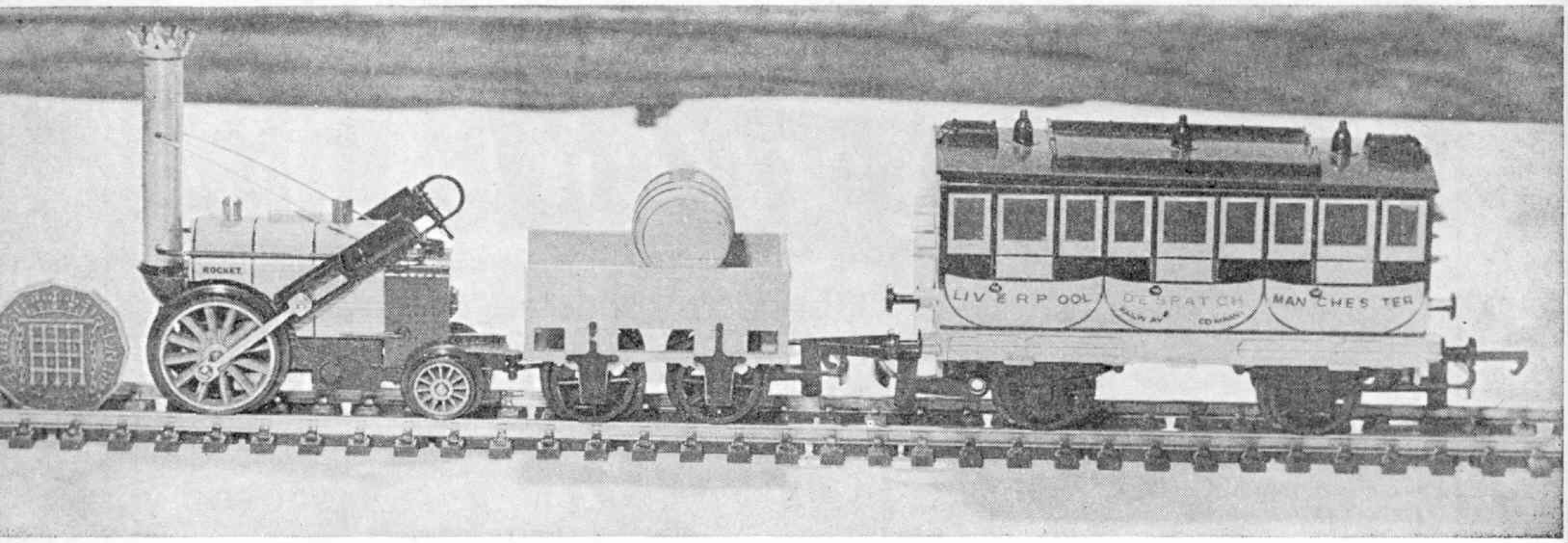
Quick Quiz

1. London to Perth, 438 miles.
2. Corps Diplomatique.
3. Girl Guides' Association.
4. U.S.A.
5. 7′ 5¾″ by Valeriy Brumel, in 1964 Olympics.
6. British.

Score: 35 or over: Excellent.
30 or over: Very good.

Commonsense Crossword

M	Y	S	T	E	R	Y	■	S	P	E	A	K
O	■	■	O	R	E	■	■	■	A	R	C	■
N	■	A	R	R	A	S	■	B	R	A	I	N
O	N	L	Y	■	D	E	B	U	T	■	D	A
C	O	O	■	S	■	T	E	N	■	N	■	S
L	E	N	G	T	H	■	A	■	M	A	S	T
E	L	G	A	R	■	R	■	B	■	S	T	Y
■	■	■	T	A	K	E	■	A	F	A	R	■
S	■	S	H	Y	■	G	■	T	■	L	O	T
T	A	P	E	■	F	R	E	T	S	■	L	O
A	L	E	R	T	■	E	■	L	■	A	L	L
L	E	E	■	O	A	T	M	E	A	L	■	L
L	■	D	E	N	T	S	■	S	N	I	P	S



The 'Rocket' set compared against a standard 00 gauge 3d bit! It's a remarkable technical achievement

why not a preserved line?

The smoke and the smell of wet coal—all come magically back to life with these colourful, truly vintage models of yesteryear.

THERE is no denying the fact that many of the older steam locomotives to appear on our railway systems were extremely attractive, especially those painted in the colourful liveries that were almost commonplace before the grouping of railways in 1923. Many of the locomotives built at that period survived until quite recently, and one or two can still be seen in the various museums and preserved railways throughout the country. A large number, if not all of these, are now repainted in their former liveries, and can usually be seen on railways like the 'Bluebell' in Sussex, and on special trips occasionally run along railway 'regular' routes in different parts of the country. Many of these locomotives make superb models, and would add that extra touch of colour to any layout. Unfortunately, such models have hitherto been unobtainable ready made, and it was necessary to build them yourself—a difficult and time consuming task. Now, however, it is not necessary to go to such lengths, for the Tri-ang Hornby range includes several fine models painted in the original liveries of the pre-group railway companies.

Such models make excellent additions, as museum pieces, to any layout, although one idea that is gaining popularity among enthusiasts wishing to operate locomotives of this sort, is that of forming a 'preserved branch line' on their existing layouts, and running it purely *as* a preserved railway with its own colourful locomotives and rolling stock, while the remainder of the layout is run as a modern railway with appropriate rolling stock and locomotives. The preserved branch could be connected with the remainder of the layout at a junction station which would have a bay or possibly an entire platform set aside especially for trains from the preserved branch. This would allow many of these delightful models to be quite legitimately included on a layout purporting to be a modern B.R. line with possibly an overhead catenary system and pantograph locomotives, in addition of course, to a mixture of modern steam and diesel type locomotives.

One such model that actually is preserved, and which forms part of the Tri-ang Hornby fleet of locomotives, is the model of the Caledonian Railway 4-2-2 No. 123, which is painted in the original livery of blue with white lining. The original locomotive earned itself fame during the railway race to the north of 1888, although it was not at that time No. 123, but was allocated that number after the race. It subsequently became L.M.S. No. 1123, and was withdrawn from active service in 1935, eventually being restored to working order and repainted in the original livery in 1959.

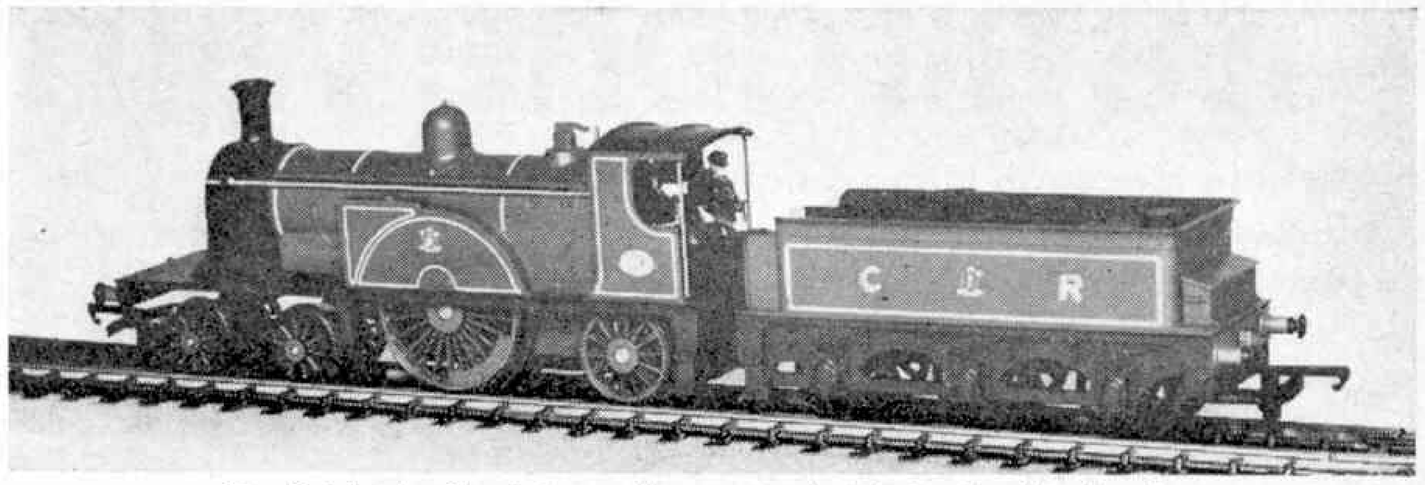
Magnadhesion

When the model locomotive was first introduced it was generally thought by many people that the lack of weight and large single driving wheel would lead to slipping with large trains and on gradients, but tests have shown that this is not necessarily the case. Although the engine is not as powerful as other locomotives in the range, it has been proved that it can easily pull four Tri-ang coaches at all speeds, and up gradients as steep as 1 in 30. This is a surprising feat for such a light engine and is due to the magnet in the chassis, holding the locomotive to the rails—a feature called 'Magnadhesion', which was described in the October issue.

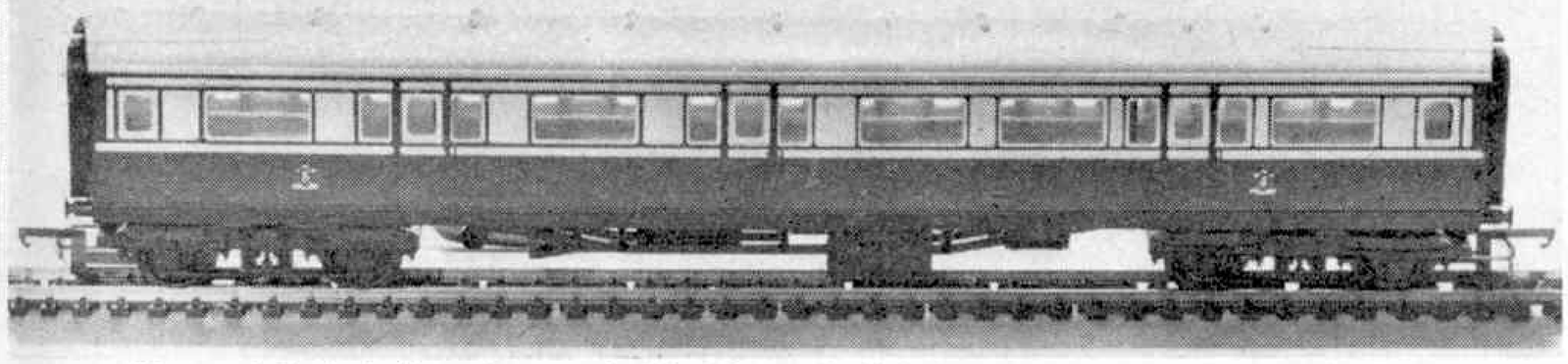
If your model railway is set in a special period, No. 123 can be repainted to suit, although the only period in which it would have appeared in a very

different colour would be between the grouping of railways in 1923, when it was taken into the L.M.S., and 1935 when it was withdrawn. The livery it was given during this period was not, I fear, the most attractive, and consisted of plain black, unlined with the numbers displayed on the tender. I feel, however, that the idea of a preserved railway is the more interesting and would allow a greater variety of locomotives and rolling stock to be operated.

A special set of two coaches is also produced for the 'Caley' single, one a brake compo and the other a 1st/3rd. Both are made to the same high standard as the locomotive, and are painted in the very distinctive colours of the old Caledonian Railway. Fully panelled, they are the correct scale length and are painted in maroon for the waist and panelling, with white for the roof and upper part of the body. A train of three coaches would be quite adequate for a preserved railway, and I would suggest two 1st/3rd coaches, and a brake compo. An additional train for such a railway could be formed from two or three standard coaches in the Tri-ang range with a 2-6-2T(R59), which although a British Rail standard type, is the sort of locomotive that one might expect to find on a branch line, and would be excellent as a second locomotive.

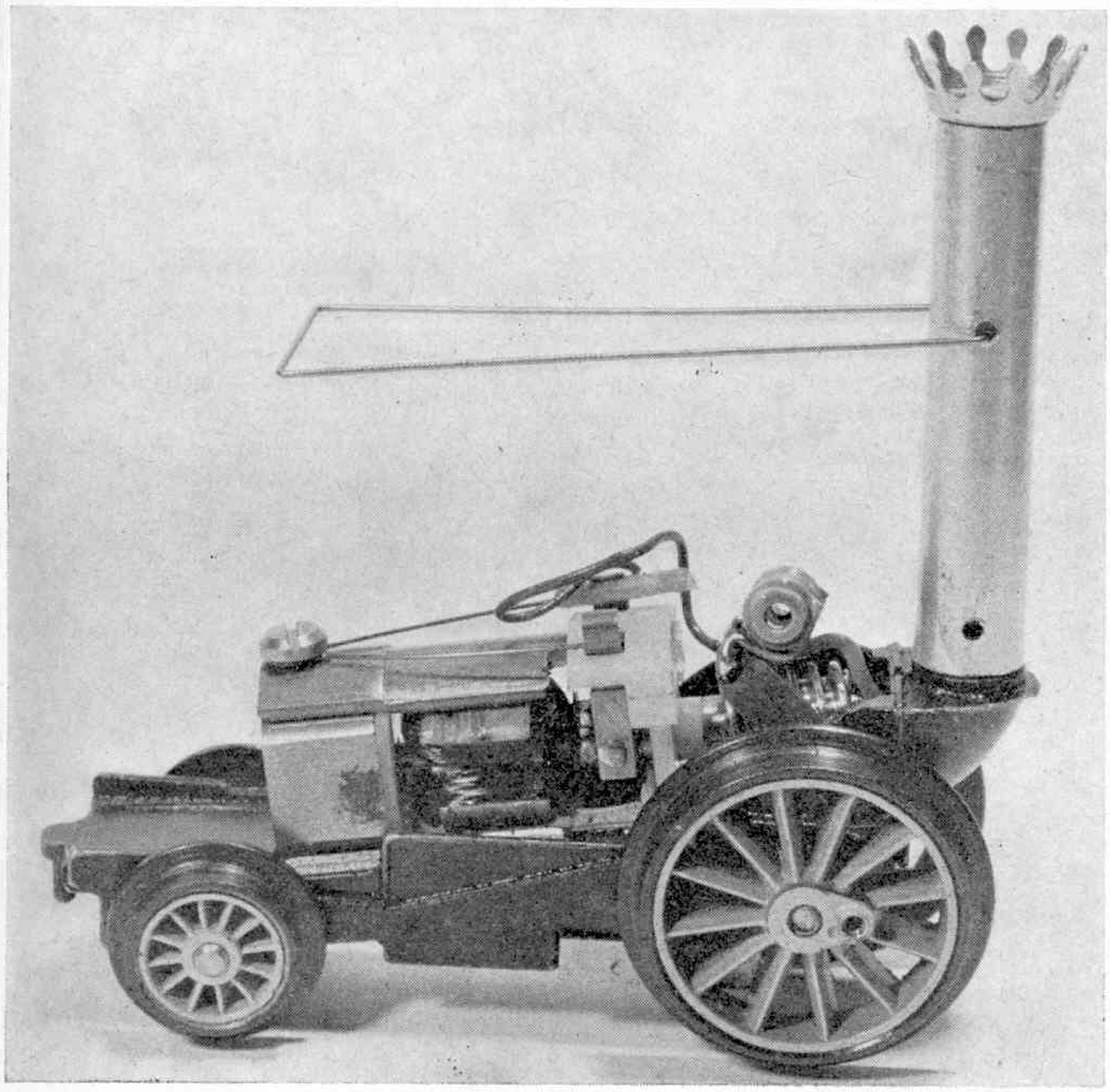


The Caledonian Single locomotive, resplendent in its attractive blue livery



The coach illustrated here forms part of the 'Caley' single train, and is painted in the correct livery

A close up view of the 'Rocket' with the new X500 motor—about twice life size!



The Rocket

A really delightful train set that one doesn't really need an excuse for adding to a layout, is the 'Rocket' set, which includes a model of the rather curious tender that was used with the locomotive, and a suitable stagecoach-like coach. Once again a preserved railway line is the ideal place to run this most interesting train and, indeed, vintage trains are run at intervals on preserved railways like the 'Bluebell' for the special benefit of railway enthusiasts. Although, of course, one would not find the 'Rocket' operating at all nowadays, a preserved line would provide a reasonable excuse for resurrecting the type.

In addition to producing a most attractive set, the 'Rocket' locomotive is a masterpiece of miniature engineering. It is the smallest locomotive to be produced by Rovex Scale Models and it contains the X500, a completely new motor, much smaller than any of those hitherto produced by them for their locomotives. It also has Magnadhesion. Without this feature, 'Rocket' would be limited to very small trains, and easy gradients, whereas it can now be used for trains of reasonable length. Even with Magnadhesion however, 'Rocket' cannot be used on trains of prodigious length—indeed such trains are unnecessary. Three, or at the most, four of the special coaches produced for the locomotive would be quite appropriate. These fascinating vehicles are, incidentally, beautifully moulded in plastic, and include almost every conceivable detail, especially on the solebars of the coaches, which have the push rods for the buffers, each the correct shape and size, and the circular mouldings on the waist.

All three items in the 'Rocket' set are painted yellow and black—the correct livery for the train. The diminutive tender has a water barrel mounted at its back end, with a pile of simulated coal in front. The axle guards are also of the correct pattern and are painted black. All these components of the set are made in a resilient plastic that will not break without extreme provocation !

it's all done with water...

A working Meccano Microscope of the Hanging Drop type, built by Mr. G. A. Cloud of Solihull. A drop of water or special solution serves as the magnifying lens.

...and a mirror

NOT many people know that a hanging drop of water will act as a lens and will give quite a good magnified image of an object placed under it. What is more, the magnification is reasonably powerful, being between ×20 and ×40.

It is a simple matter to build a suitable microscope complete with a focusing device for the liquid lens, and all except the lens and the mirror can be made from Meccano Parts. A Double Arm Crank 1 is bolted to a 3½ in. by 2½ in. Flanged Plate. Mounted in the boss of the Crank is a 4 in. Rod 2 carrying a loose Crank 3 extended by a 1½ in. Strip.

A 4½ in. Screwed Rod 4 carrying a Threaded Coupling 5 and another Crank 6 is fixed in the Flanged Plate. Rod 2 passes through the centre hole in the arm of Crank 6, which is then fixed to the arm of Crank 3 by a Bolt screwed into a Threaded Boss. Three 2 in. Strips 7 are joined at one end by a 1½ in. Strip and the resulting assembly is fixed to the other end of the Threaded Boss. Two Compression Springs 8 are placed on Screwed Rod 4, being held in place by two Nuts with a 2½ in. Strip 9 fixed between the Nuts.

Also bolted to the Flanged Plate is a 1½ in. Strip to which another Threaded Coupling 10 is secured. Mounted in the end transverse smooth bore of the Coupling is a 1 in. Rod carrying a Collar and an End Bearing 11. The mirror is later held in the End Bearing.

For best results a glass mirror of approximately 1 in. by ¾ in. in size (the one shown in the illustration was cut from a mirror from a lady's old handbag) should be used, but a piece of silver paper of the type wrapped round the larger bars of chocolate would do. If the latter is used, the paper should be carefully smoothed out against a hard surface and then glued or pasted on to a stiff piece of smooth cardboard.

The lens holder

Strip 9 in the illustration serves as the lens holder, the hanging drop being placed in the end hole. The Strips should be new, or at least completely clean and unscarred around the end hole. The hole itself must be quite round and clean, otherwise the hanging drop will not form an even curvature and a distorted lens will give a distorted image.

The area surrounding the hole and the inside edge of the hole should be polished with a little furniture cream containing Silicone.

The liquid lens

A drop of clean water will serve as the lens, working quite well, but it has the disadvantage of being quick to evaporate in a warm dry atmosphere. A longer-lasting lens can be produced from a mixture of two parts water and one part glycerine B.P. If this is made up by the local chemist one fl./oz. will last for a very long time. Ask for the solution to be put into one of the special bottles used for 'eye drops'. This type of bottle has a screw top, in which there is a glass tube dropper.

To produce the lens, a small drop of water, or of the above mixture is placed in the lens hole of the Strip. Care must be taken to ensure that the right type of lens is formed. The accompanying diagram shows the best type of lens to aim for.

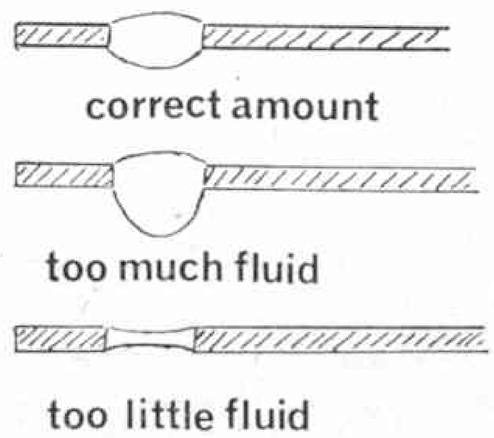
When using the microscope it must be placed on a very firm table so that there is no shake or vibration, otherwise the liquid lens will wobble and a very poor shaky image will result.

It is necessary to get your eye as close to the liquid lens as possible. For transparent objects use the mirror to reflect the light up through the specimen.

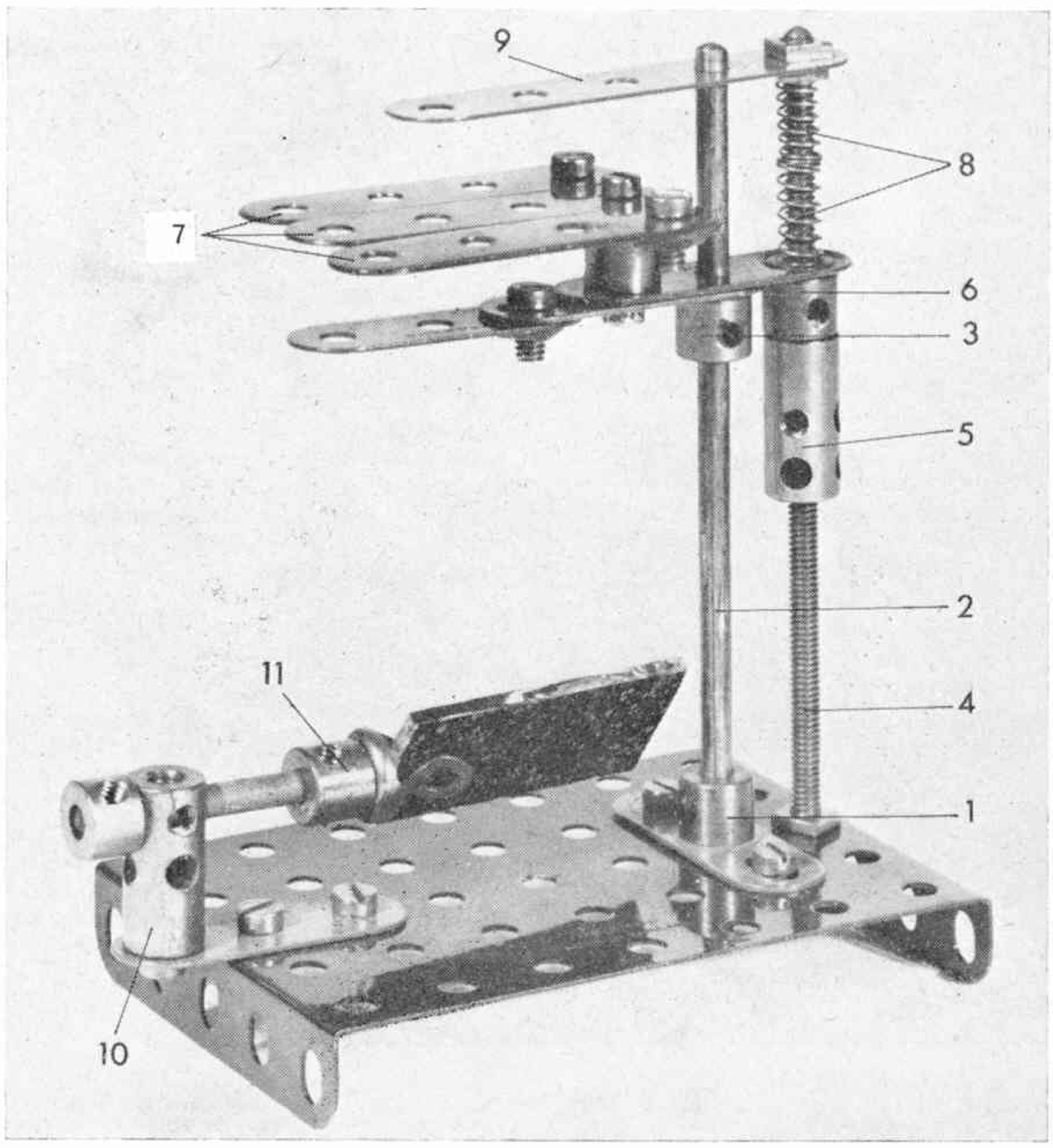
For opaque objects, a small hand torch will be very useful if held to one side of the three 2 in. Strips forming the object stage.

Parts required:

1 of No. 5	9 of No. 37b	1 of No. 64
3 of No. 6	1 of No. 53	1 of No. 80b
3 of No. 6a	1 of No. 59	2 of No. 120
1 of No. 15b	2 of No. 62	1 of No. 166
1 of No. 18b	1 of No. 62b	
11 of No. 37a	2 of No. 63c	



Three types of lens. The upper diagram shows the correct shape to aim for. The centre diagram shows the effect of too much liquid, while the lower diagram shows insufficient liquid



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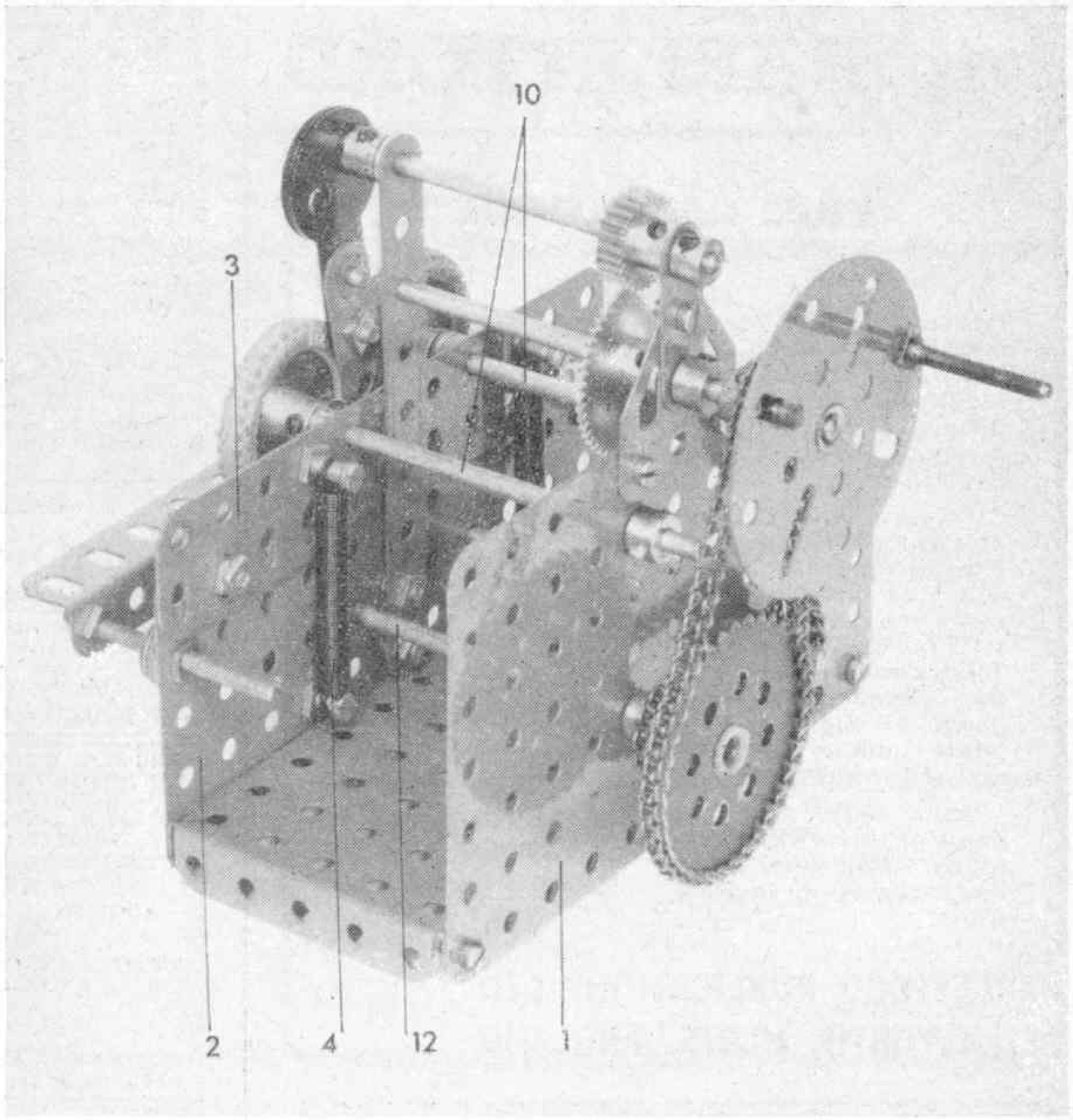
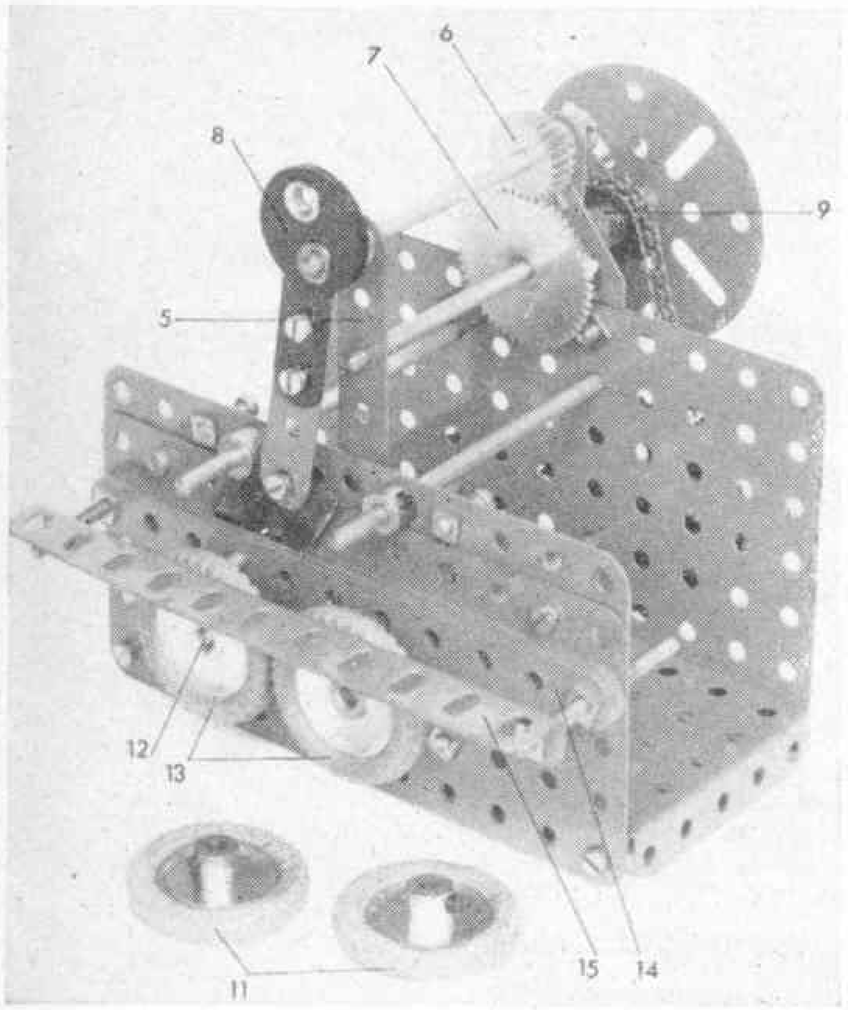


An automatic letter opener that neatly cuts off the top edge of an envelope, thus saving a good deal of trouble, and, incidentally making quite an exciting operation out of a chore

ARE you one of those people like me, who enjoys receiving letters but detests the trouble involved in opening them? I find that most of the letters I receive are sealed so well that I have great difficulty in getting my finger underneath the end of the flap and spend agonizing moments fumbling about. When I do manage to raise the end and then try to slit the envelope open along its upper edge, the 'slit' usually manages to shoot down into the middle of the envelope instead of staying along the top as it should do, with the result that the envelope is ruined and there is always the danger that the contents might well be damaged too. Somewhere, I have one of those dangerous looking stiletto-type openers, but it always seems to get mislaid.

For this reason I am particularly pleased to feature this invaluable Meccano model. It is, as you might have guessed, an automatic letter opener, but more important still, it's no toy, for it really works! The sealed envelope is simply placed between the first two rollers, and the handle turned. The envelope passes through, having its top edge neatly cut off in the process! A razor blade provides the cutting edge, so great care must be exercised when fitting the cutting mechanism to the model.

In this view the upper rollers have been removed to show the position of the razor blade. A section of the left-hand edge of the blade must be broken off to prevent the blade catching on the Collar. A Bolt is passed loosely through Strips 14 and through the razor blade centre



A 5½ in. by 3½ in. Flat Plate 1 and a 5½ in. by 2½ in. Flat Plate 2 are bolted to a 5½ in. by 2½ in. Flanged Plate. A 5½ in. Flat Girder 3 is attached to Plate 2 by lock-nutted bolts through its elongated holes. Tension Springs 4 are added as shown, being fixed to ½ in. Bolts in the Flat Girder and to ⅜ in. Bolts in Plate 2.

Bolted to the inside of Plate 2, but separated from it by two Washers on the shank of each Bolt is a 4½ in. Strip 5. A Flat Trunnion extended by 1½ in. Strips is secured to Plate 1 and journalled in this and Strip 5 are a 3½ in. Rod, carrying a ⅜ in. Pinion 6, and a 4 in. Rod carrying a 50-teeth Gear Wheel 7. Gear 7 is in constant mesh with Pinion 6. Also mounted on the 3½ in. Rod is a Collar, two Washers, and a Single Throw Eccentric 8, extended by a 2 in. Strip. Also mounted on the 4 in. Rod is a Collar, a ¾ in. Sprocket Wheel 9 and a Face Plate, carrying a Long Threaded Pin to act as a handle. Lock-nutted to the 2 in. Strip is an ordinary razor blade.

Two 4 in. Rods 10 are journalled in Plate 1 and Flat Girder 3, Collars holding them in place, and two 1 in. Pulleys with Tyre 11 are mounted on their ends. Another two 4 in. Rods 12 are mounted in Flat Plates 1 and 2, being held in place by ⅜ in. Sprocket Wheels at one end and by Collars at the other. The Sprocket Wheels are connected by Chain, while another two 1 in. Pulleys with Tyre 13 are added at the other ends of the Rods. Pulleys 11 and 13 represent the rollers. A 2 in. Sprocket Wheel is added to one Rod 12, and is connected to Sprocket Wheel 9 by Chain.

Fixed to Plate 2 by Nuts on 2 in. Screwed Rods are five 5½ in. Strips 14, and the razor blade is inserted between the second and third Strips. Finally, a 5½ in. Angle Girder 15 is mounted on the 2 in. Screwed Rod, also being held in place by Nuts.

Parts required

5 of No. 2	14 of No. 37b	1 of No. 103
1 of No. 2a	8 of No. 38	1 of No. 109
1 of No. 6	2 of No. 43	2 of No. 111a
1 of No. 6a	1 of No. 52	2 of No. 111c
1 of No. 9	1 of No. 52a	1 of No. 115a
5 of No. 15b	8 of No. 59	1 of No. 126a
1 of No. 16	1 of No. 70	1 of No. 130a
4 of No. 22	1 of No. 81	4 of No. 142c
1 of No. 25	1 of No. 94	1 Razor Blade
1 of No. 27	1 of No. 95	
31 of No. 37a	3 of No. 96a	

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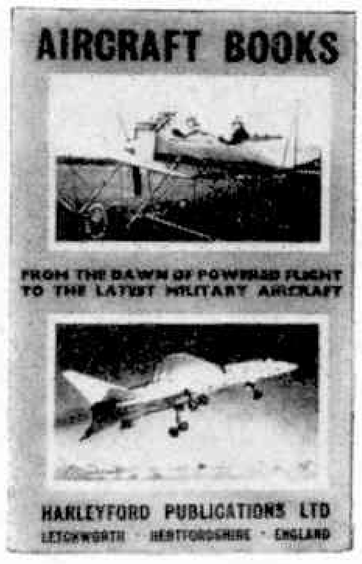
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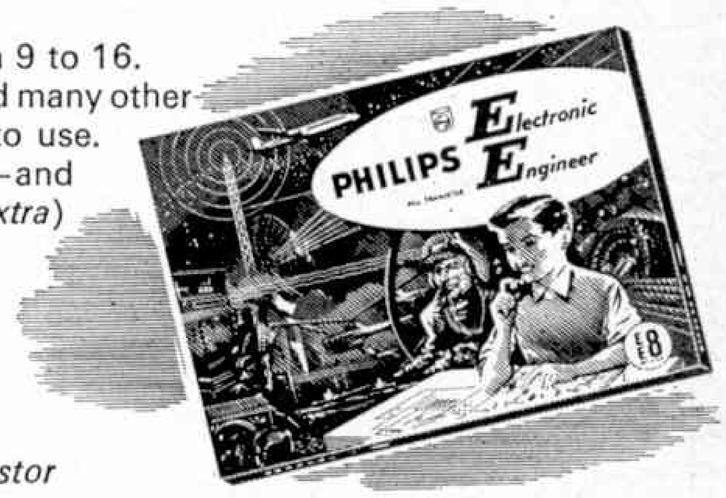

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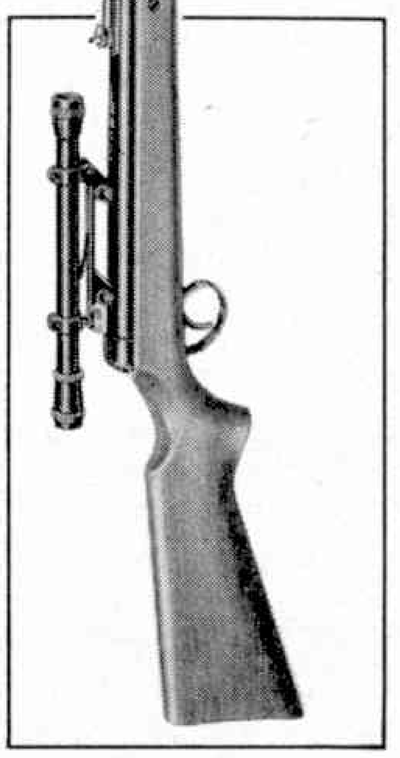

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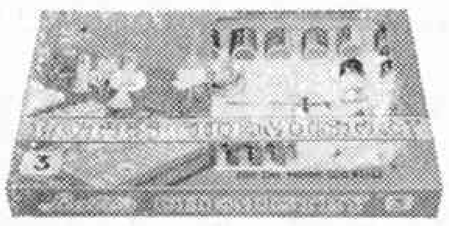

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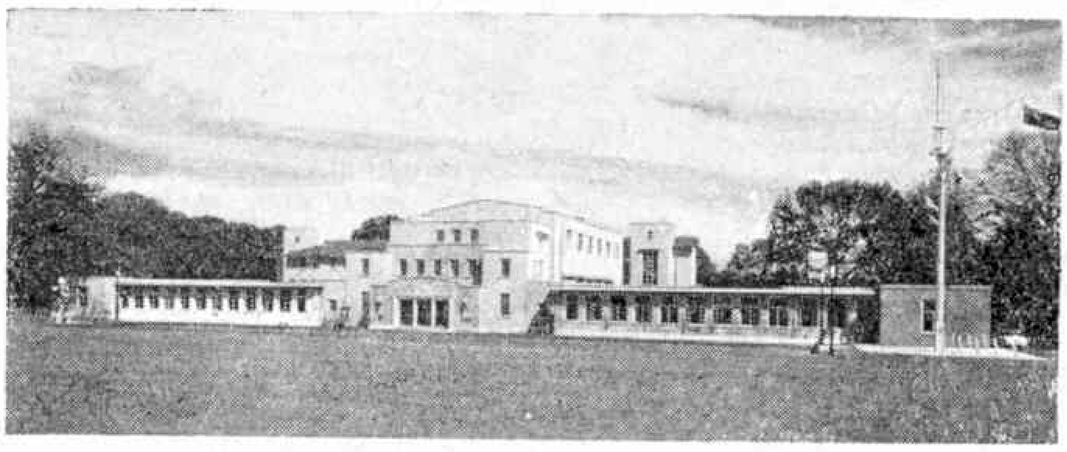

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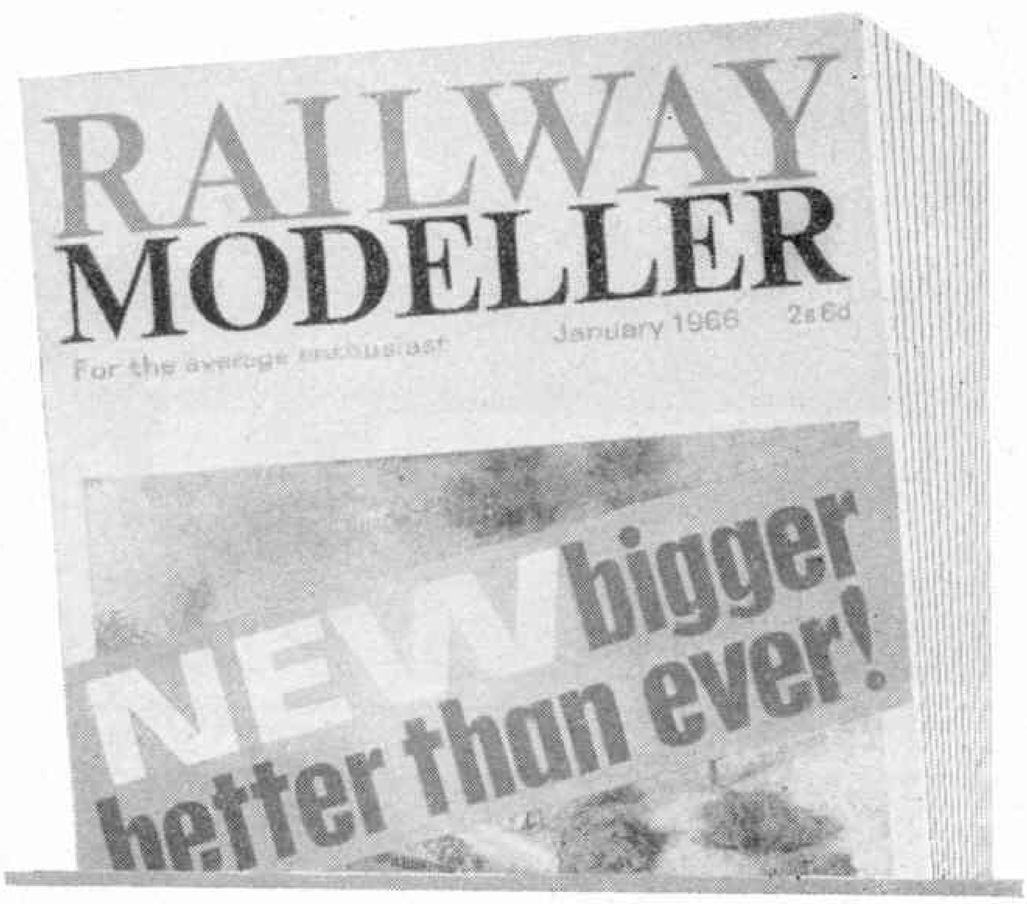

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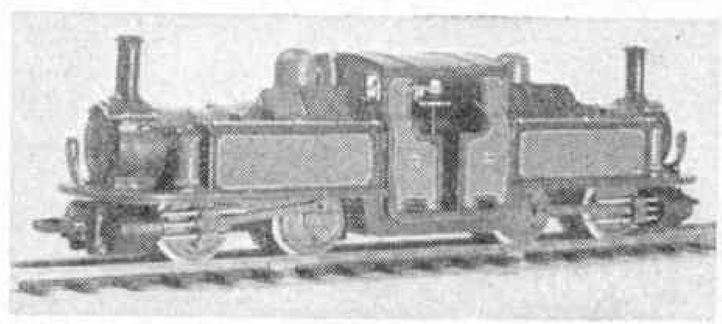

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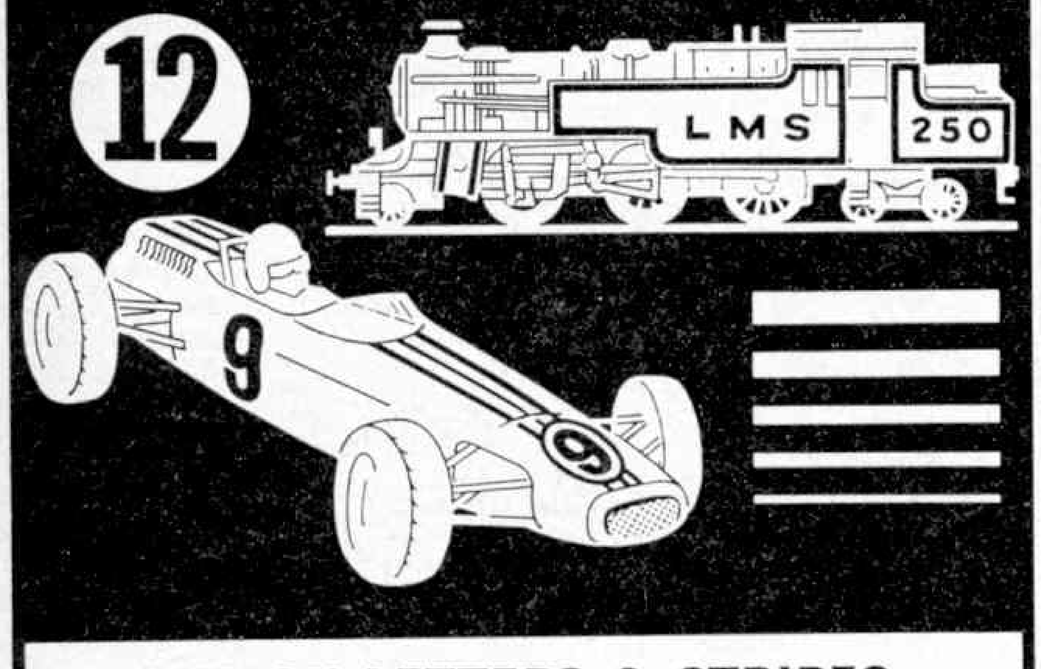

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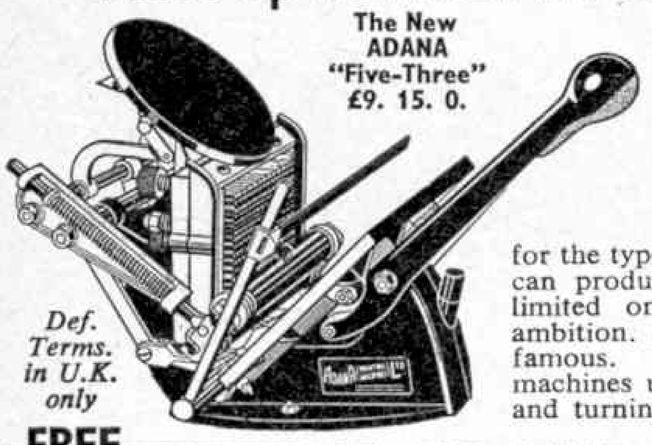

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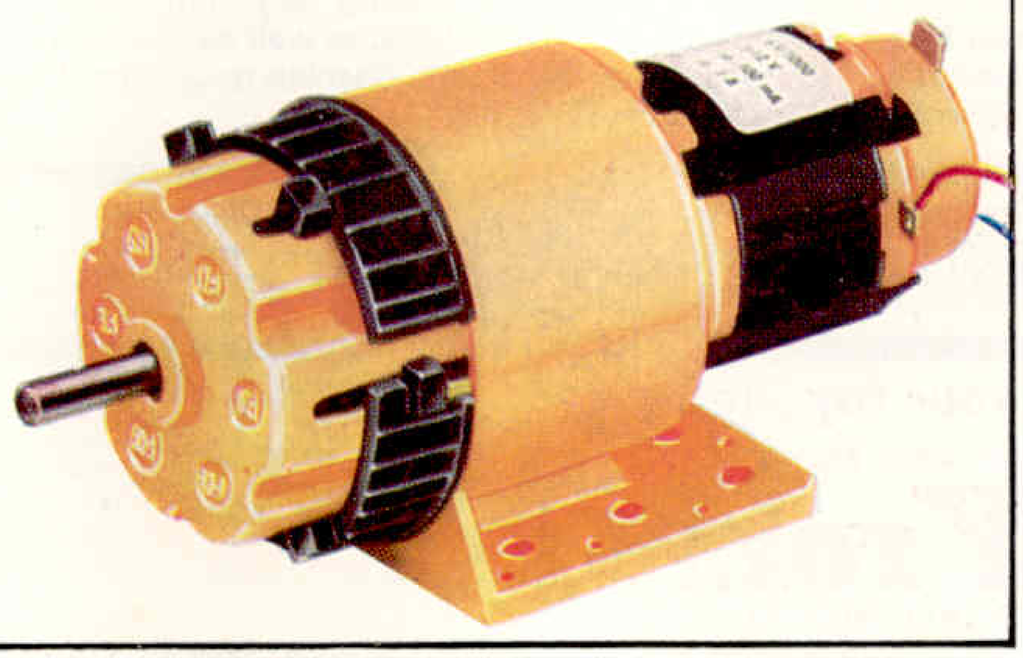

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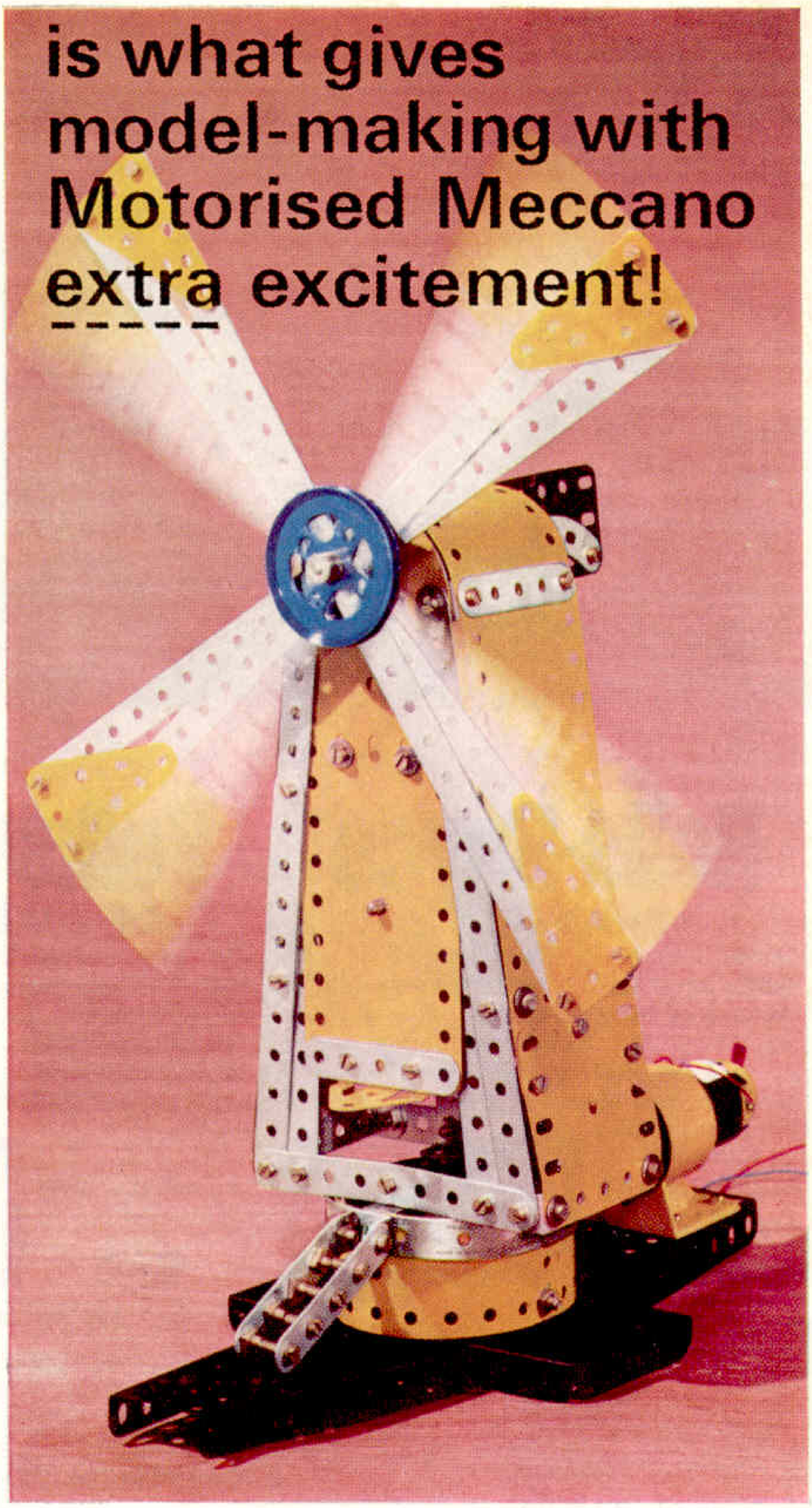

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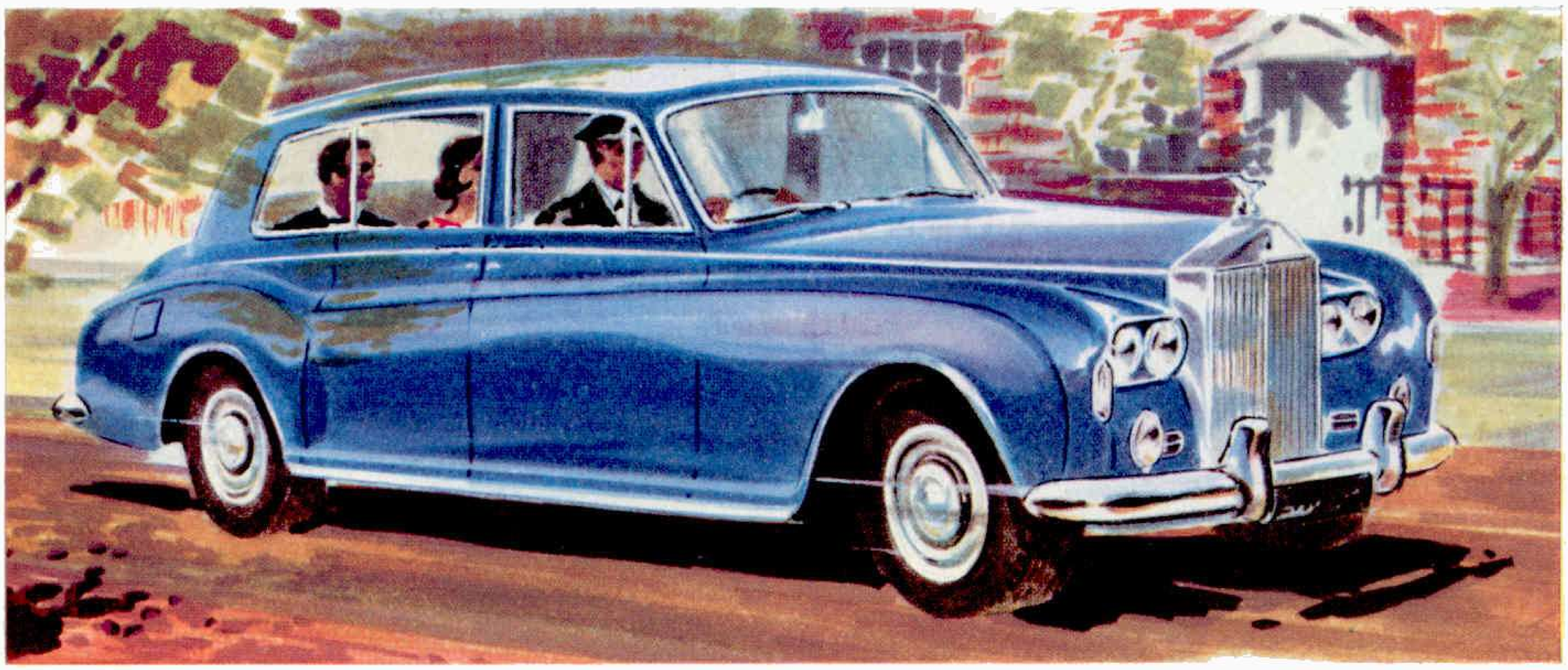


3 NEW DINKY MODELS for CHRISTMAS

Rolls-Royce
PHANTOM V

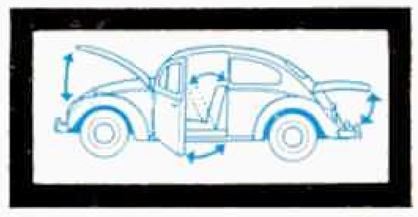
Superb! Luxurious! The Phantom V with chauffeur and 2 passengers . Has a wonderful collection of action features . All four doors open . Boot lifts . 'Gull wing' bonnet opens to reveal detailed engine . Jewelled twin headlights and spot and indicator lights 'Chromed' radiator and bumpers.

Model No. 152
Length 5 9/16"
Price **14/11**

Volkswagen
DE LUXE SALOON

The famous small German car with a big name The Volkswagen has opening doors. and bonnet and the boot lifts up to show detailed rear engine . Other features are four wheel suspension, prestomatic steering, jewelled headlights and 'Chromed' bumpers and trim.

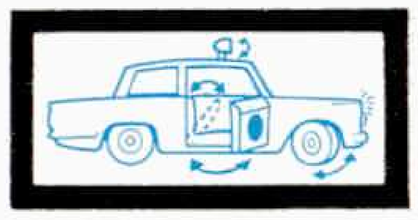
Model No. 129
Length 3 15/16"
Price **8/11**



Cortina
RALLY CAR

This famous winner for Britain is in authentic rally colour finish with number, and advertisements. Swivelling roof light and 3 extra bumper spotlights, as well as jewelled head and rear lights. Opening doors and tipping seats.

Model No. 212
Length 4"
Price **6/11**



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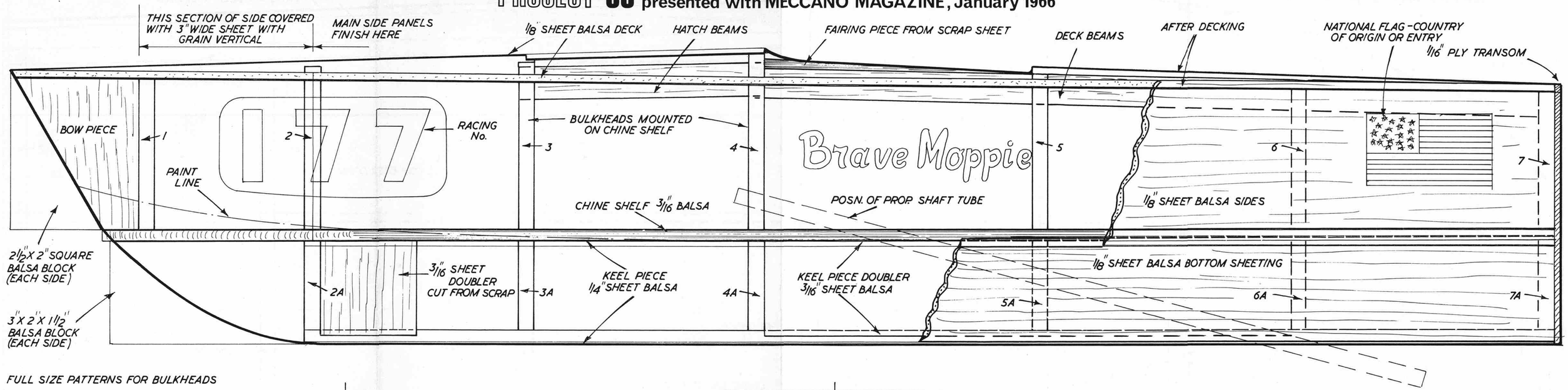
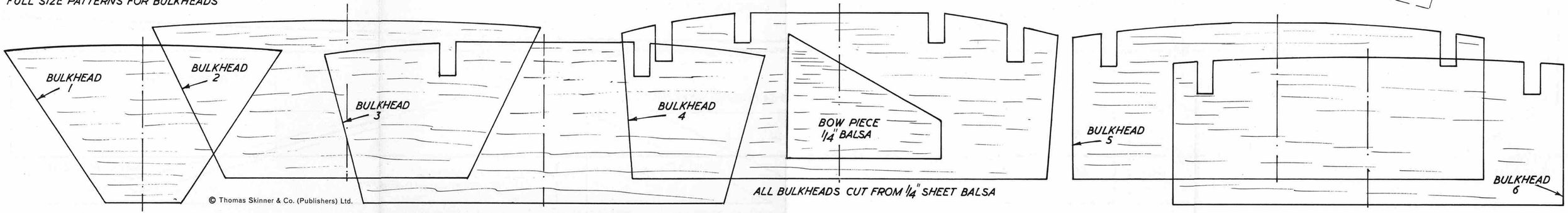


FULL SIZE PATTERNS FOR BULKHEADS



ALL BULKHEADS CUT FROM 1/4" SHEET BALSA

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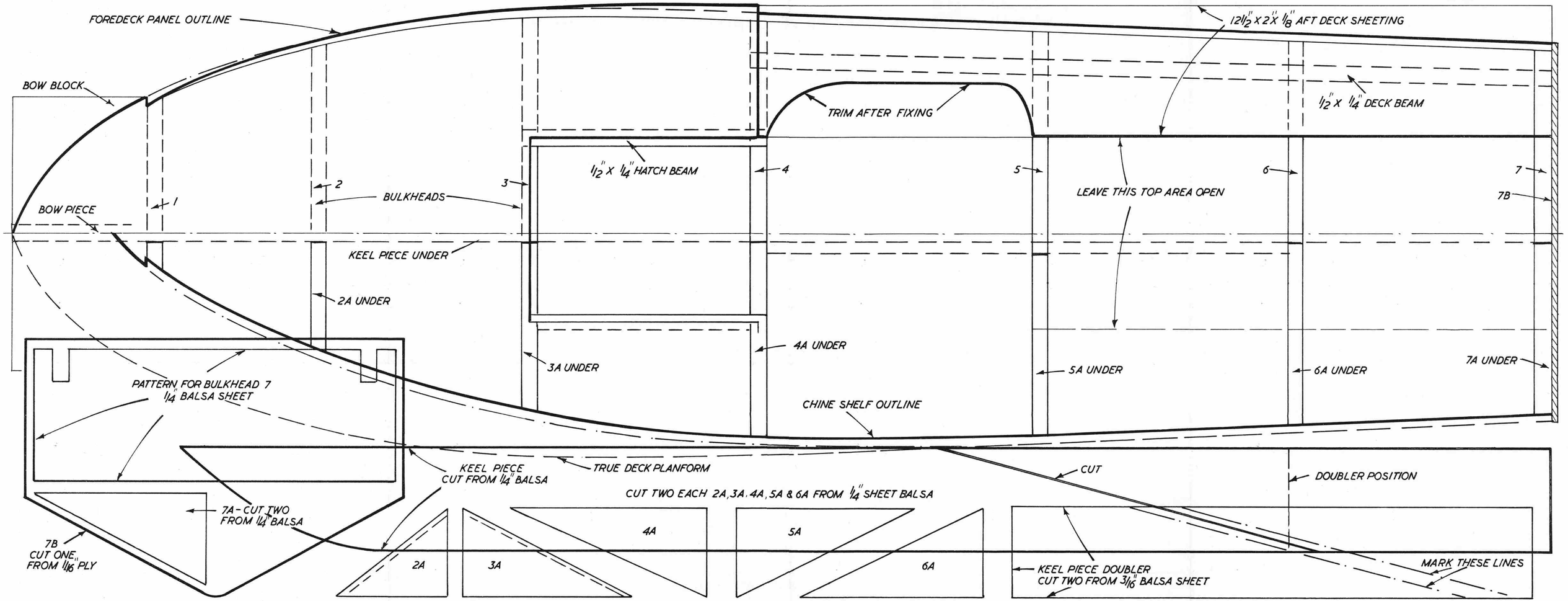
FOREDECK PANEL OUTLINE
12 1/2" X 2" X 1/8" AFT DECK SHEETING
BOW BLOCK
1/2" X 1/4" DECK BEAM
TRIM AFTER FIXING
1/2" X 1/4" HATCH BEAM
1
2
3
4
5
6
7
7B
BULKHEADS
LEAVE THIS TOP AREA OPEN
BOW PIECE
KEEL PIECE UNDER
2A UNDER
4A UNDER
3A UNDER
5A UNDER
6A UNDER
7A UNDER
PATTERN FOR BULKHEAD 7
1/4" BALSA SHEET
CHINE SHELF OUTLINE
KEEL PIECE
CUT FROM 1/4" BALSA
TRUE DECK PLANFORM
CUT
DOUBLER POSITION
CUT TWO EACH 2A, 3A, 4A, 5A & 6A FROM 1/4" SHEET BALSA
7A - CUT TWO
FROM 1/4" BALSA
7B
CUT ONE
FROM 1/16" PLY
2A
3A
4A
5A
6A
KEEL PIECE DOUBLER
CUT TWO FROM 3/16" BALSA SHEET
MARK THESE LINES

THIS SECTION OF SIDE COVERED WITH 3" WIDE SHEET WITH GRAIN VERTICAL

MAIN SIDE PANELS FINISH HERE

BOW PIECE

1

2

RACING No.

PAINT LINE

$2\frac{1}{2}$" X 2" SQUARE BALSA BLOCK (EACH SIDE)

3" X 2" X $1\frac{1}{2}$" BALSA BLOCK (EACH SIDE)

2A

$3\frac{1}{16}$" SHEET DOUBLER CUT FROM SCR

FULL SIZE PATTERNS FOR BULKHEADS

BULKHEAD 1

BULKHEAD 2

BULKHEAD 3

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DE PANELS
HERE

1/8" SHEET BALSA DECK

HATCH BEAMS

FAIRING PIECE

7

RACING
No.

BULKHEADS MOUNTED
ON CHINE SHELF

3

4

Brave

CHINE SHELF 3/16" BALSA

POSN. OF PRO

3/16" SHEET
DOUBLER
CUT FROM SCRAP

3A

KEEL PIECE
1/4" SHEET BALSA

4A

KEEL PIECE DOUBLER
3/16" SHEET BALSA

KHEAD

BULKHEAD
4

BOW PIECE
1/4" BALSA

ALL BULKHEADS CUT FROM 1/

FAIRING PIECE FROM SCRAP SHEET

DECK BEAMS

AFTER DECKING

Brave Moppie

5

6

POSN. OF PROP. SHAFT TUBE

1/8" SHEET BALSA SIDES

1/8" SHEET BALSA BOTTOM SHEETING

KEEL PIECE DOUBLER
3/16" SHEET BALSA

5A

6A

BOW PIECE
1/4" BALSA

BULKHEAD
5

ULKHEADS CUT FROM 1/4" SHEET BALSA

R DECKING

NATIONAL FLAG - COUNTRY
OF ORIGIN OR ENTRY

1/16" PLY TRANSOM

6

7

T BALSA SIDES

BOTTOM SHEETING

6A

7A

BULKHEAD
6

FOREDECK PANEL OUTLINE

BOW BLOCK

BOW PIECE

1

2

3

BULKHEADS

KEEL PIECE UNDER

2A UNDER

PATTERN FOR BULKHEAD 7
1/4" BALSA SHEET

KEEL PIE
CUT FROM 1/4

7A - CUT TWO
FROM 1/4" BALSA

7B
CUT ONE
FROM 1/16" PLY

2A

3A

TRIM AFTER FI

1/2" X 1/4" HATCH BEAM

4

3

BULKHEADS

IECE UNDER

R

4A UNDER

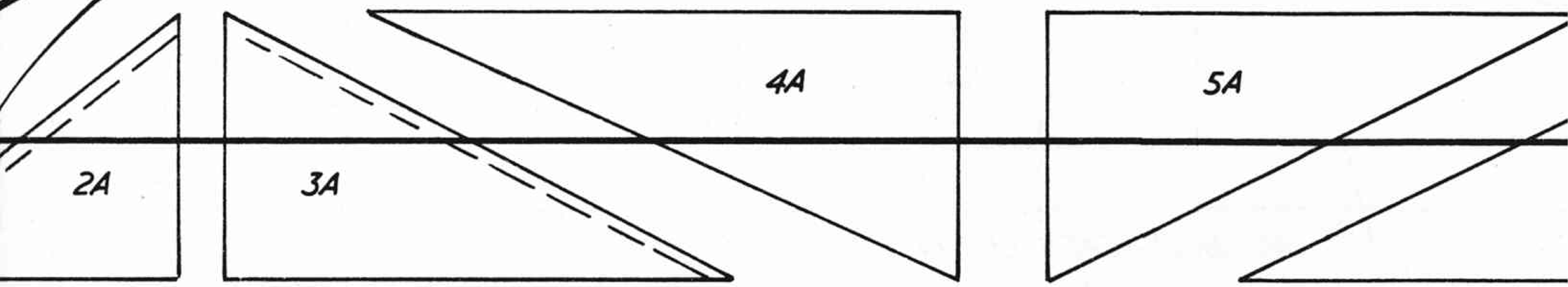
3A UNDER

CHINE SHELF OUTLI

KEEL PIECE
CUT FROM 1/4" BALSA

TRUE DECK PLANFORM

CUT TWO EACH 2A, 3A, 4A, 5A & 6A FROM 1/4" SHEET BA



12 1/2" X 2" X 1/8" AF

TRIM AFTER FIXING

5

6

LEAVE THIS TOP AREA OPEN

4A UNDER

5A UNDER

CHINE SHELF OUTLINE

CUT

& 6A FROM 1/4" SHEET BALSA

5A

6A

KEEL PIECE DOUBLER
CUT TWO FROM 3 1/16" BALSA SHEET

12 1/2" X 2" X 1/8" AFT DECK SHEETING

1/2" X 1/4" DECK BEAM

6

7

A OPEN

7B

6A UNDER

7A UNDER

DOUBLER POSITION

MARK THESE LINES

EET